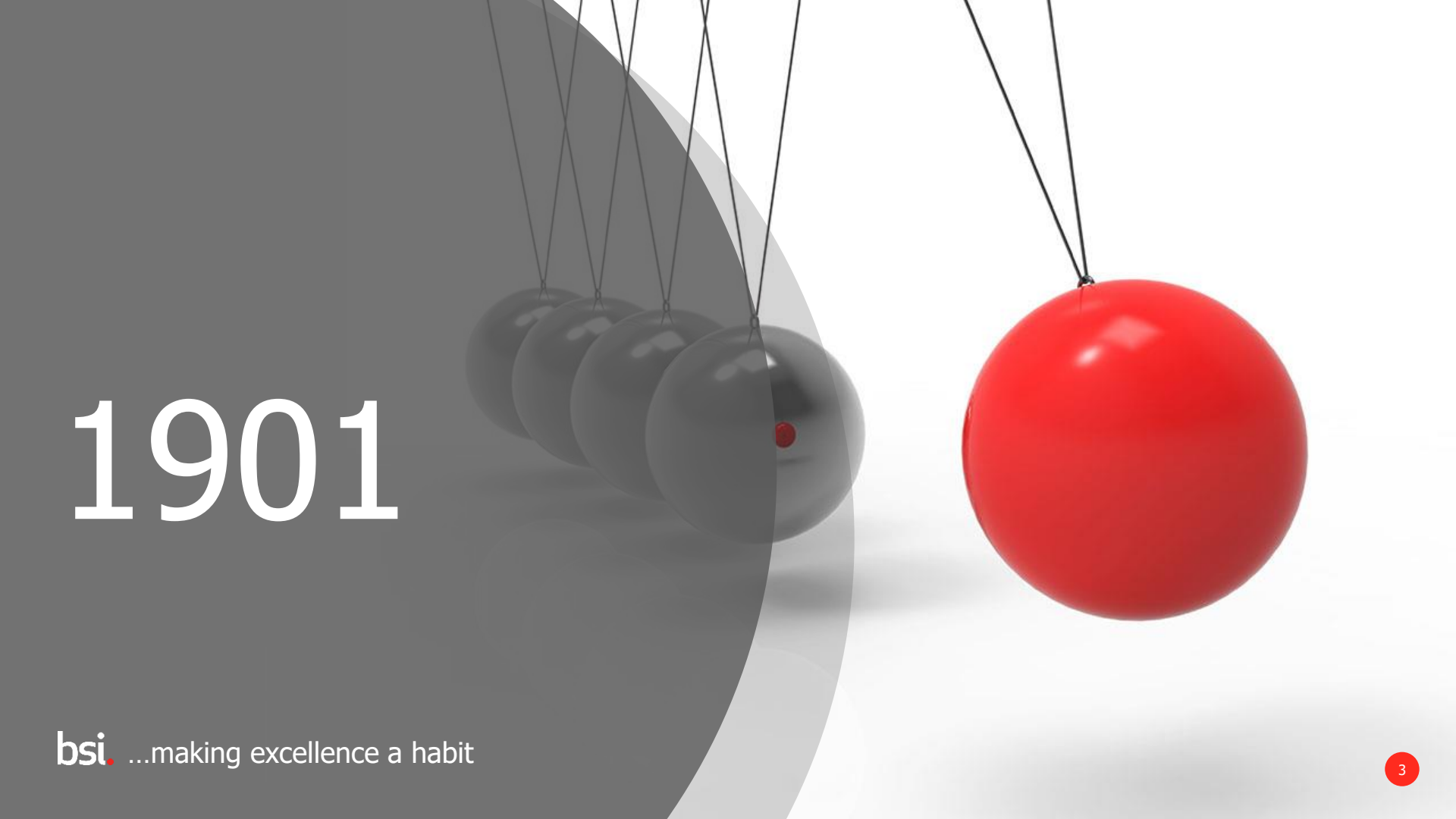
Annual PALMS Conference @ MTA/NYCT
December 13, 2018

BSI Entropy – Lessons Learned, Lagging and Leading metrics

Gary Robinson

SVP EHS Information Solutions



1901

bsi. …making excellence a habit

Innovation is in our DNA from the first standard developed by BSI to align London's tram track gauges in 1901…

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Innovation is in our DNA from the first standard developed by BSI to align London's tram track gauges in 1901…

…to today's standards that help smart cities reduce congestion and grow sustainably…

bsi. …making excellence a habit

- BSI has shaped nearly 40,000 standards since 1901
- BSI engages more than 12k experts, academics, governments, and industry globally to create standards
- Created by industry, for industry

Quality

1 **QUALITY MANAGEMENT**
BS 5750 (1979) → **ISO 9001** (1987)
ISO 13485
IATF 16949
AS 9100

Environmental

1. **QUALITY MANAGEMENT**
   BS 5750 (1979) → **ISO 9001** (1987)
   ISO 13485
   IATF 16949
   AS 9100

2. **ENVIRONMENTAL MANAGEMENT**
   BS 7750 (1992) → **ISO 14001** (1996)

Safety

1. **QUALITY MANAGEMENT**
   BS 5750 (1979) → **ISO 9001** (1987)
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2. **ENVIRONMENTAL MANAGEMENT**
   BS 7750 (1992) → **ISO 14001** (1996)

3. **OCCUPATIONAL HEALTH AND SAFETY**
   BS 8800 (1996) → BS OHSAS 18001 (1999) → **ISO 45001** (2018)

Cyber

1. **QUALITY MANAGEMENT**
   BS 5750 (1979) → **ISO 9001** (1987)
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   BS 7750 (1992) → **ISO 14001** (1996)
3. **OCCUPATIONAL HEALTH AND SAFETY**
   BS 8800 (1996) → BS OHSAS 18001 (1999) → **ISO 45001** (2018)
4. **INFORMATION SECURITY**
   BS 7799 (1995) → **ISO 27001** (2005)

We are a purpose-driven business focused on organizational resilience.

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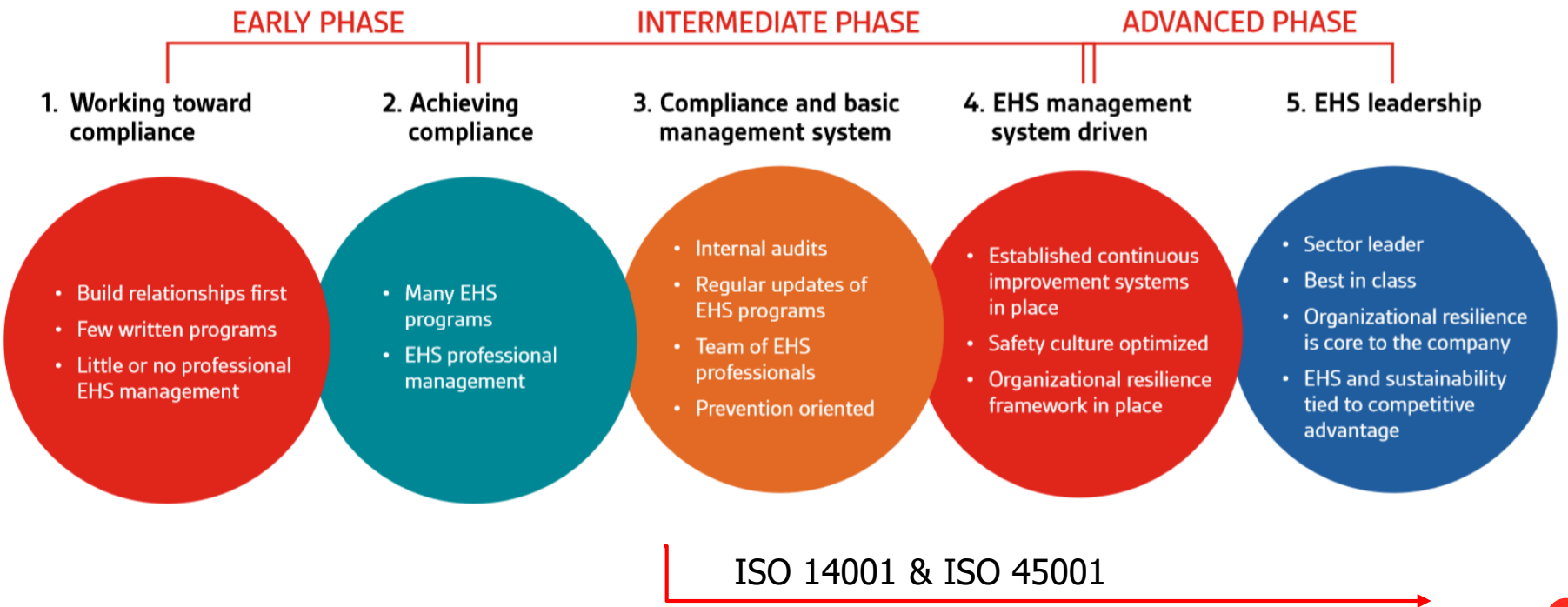
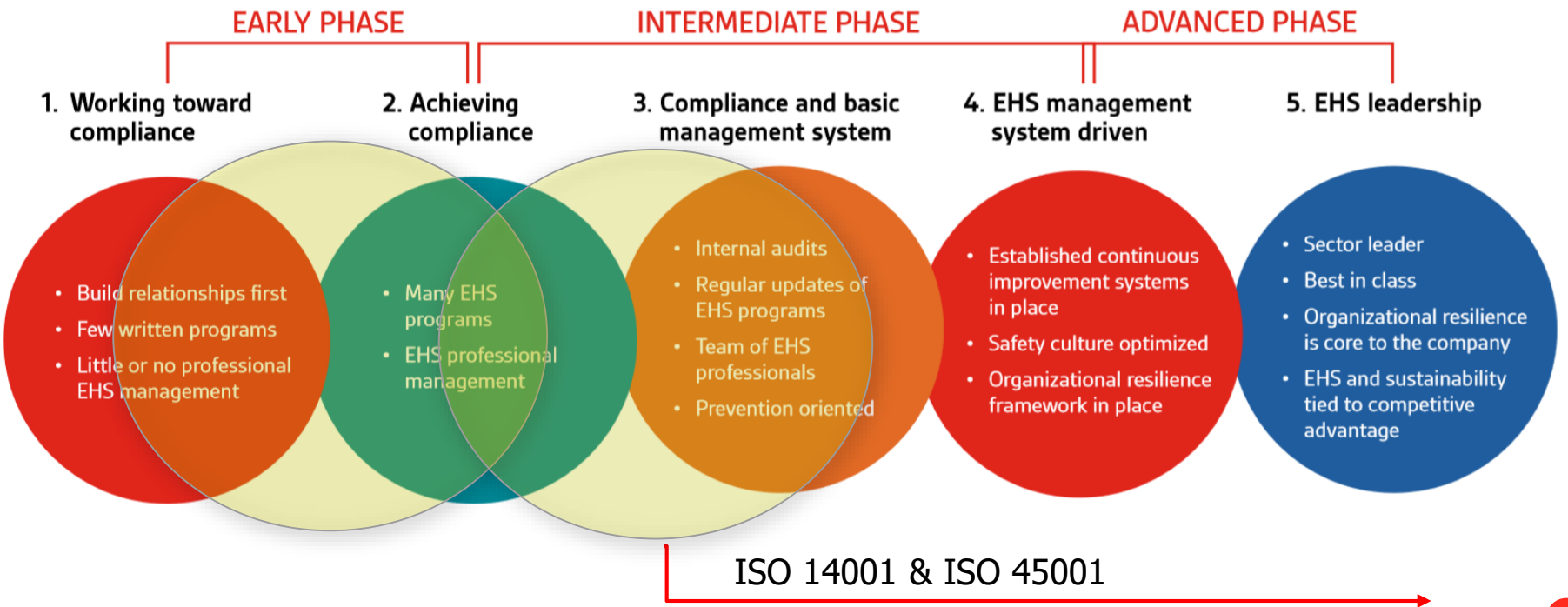
- We work for the public good to improve, standardize and simplify business systems
- Profit is reinvested back into BSI and never distributed
- We are independent from outside influence

Leveraging best practice throughout EHS programs



Leveraging best practice throughout EHS programs

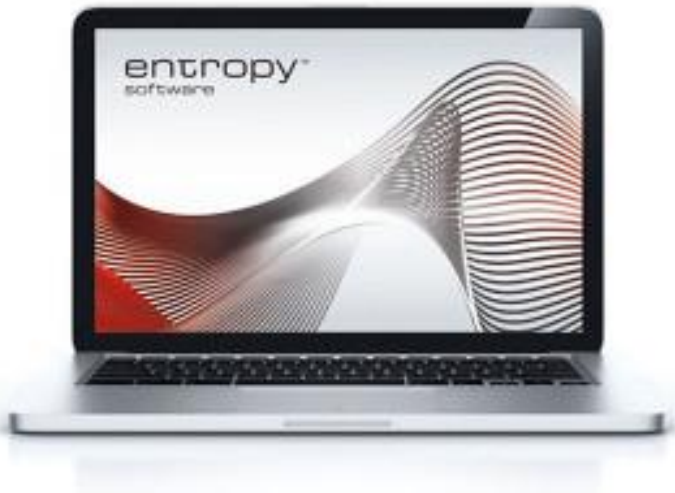


Are Management Systems too time consuming and document heavy to work?

1. Leadership commitment and context.
2. Company-wide communications/awareness.
3. Document and record management
4. Managing the compliance program.
5. Establishing realistic objectives.
6. Ownership of processes.
7. Encouraging adoption (responsibility).
8. Establishing performance baseline
9. Ensuring adequate resource.
10. Consideration of risk and opportunity.

Technology can help.

Platform to configure and house your EHS program



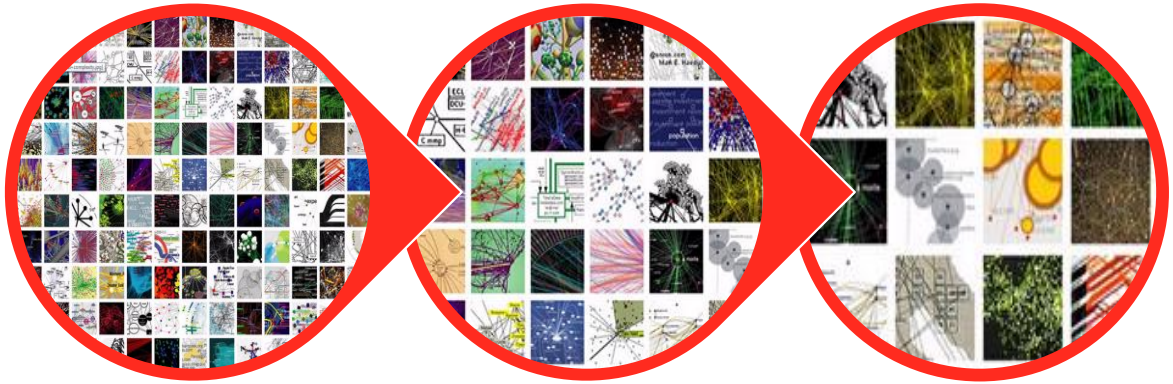
1. **Mobile Event tracking**
2. **Incident Tracking and Reporting (Lagging)**
3. **Findings Tracking (Leading)**
    - Deviations, non-conformance; at risk conditions/behaviors
    - Near Misses; Observations; Stop Work events; Opportunity for Improvement; Ideas
4. **Reporting & Dashboards**
5. **Related features**
    1. Corrective Actions, Preventative Actions, Projects (CAPA)
    2. Compliance Calendar
    3. Document Management
    4. Risk Assessment – JHAs / Similar Exposure Groups
    5. Training skills management
    6. ISO Management System support
    7. KPI Analytics

Opportunity for Significant ROI

Utilizing information technologies can lighten the load for a working system:

- Reduced business disruption
- Increased efficiency and productivity
- Provide insights that can be difficult to see manually.

Streamline processes, reduce complexity and support with a simplified set of tools to provide reporting on-demand.



Project Examples

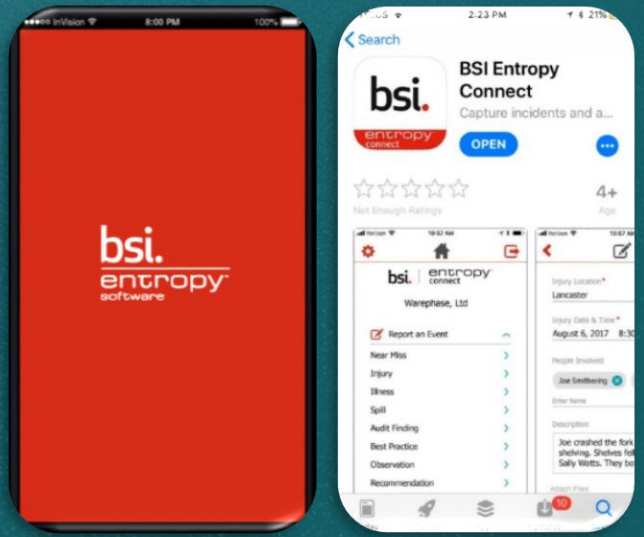
1. Mobile event logging
2. Managing a compliance audit and inspection program
3. Developing a process for risk assessment

Examples of using information technology to accelerate performance

Project Example

❶ Mobile event tracking to generate lagging and leading indicators

(BSI Entropy Connect)



Lagging vs Leading Indicators

- How do we correct and improve when something goes wrong?
- Are we learning from adverse events?
- Do we have a process?
- How do we move upstream to identify at-risk conditions and behaviors to prevent an incident?

Entropy BSI Connect officially launched at our Dallas event in September.

- Enhanced access to your Entropy applications
- Capture incidents, observations
- Capture and transition tasks
- Feed your management system with front line data to uncover predictive and prescriptive insights
- Accomplish more from the field

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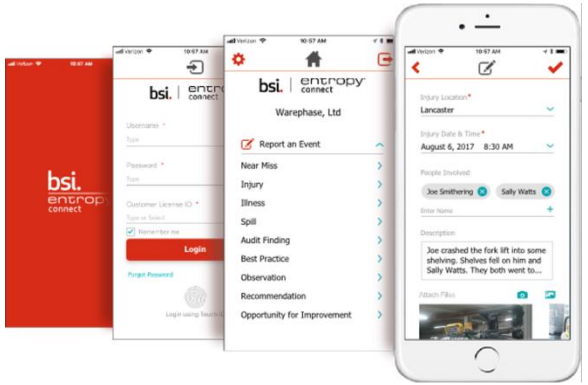
What is Entropy Connect?

Entropy Connect is a mobile app that allows anyone with a mobile phone or tablet to quickly and simply report any sort of incident, near miss, risk , nonconformity or opportunity for improvement within your organization.



- Log incidents, near misses, findings and observations
- Capture photos and short videos can be edited and attached
- Voice to text function to make reporting even easier

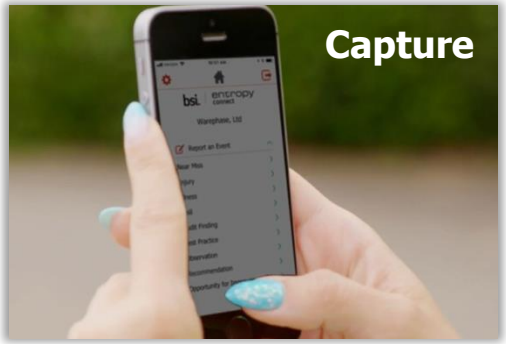
* Currently available on IOS, Android to follow before the end of the 2018

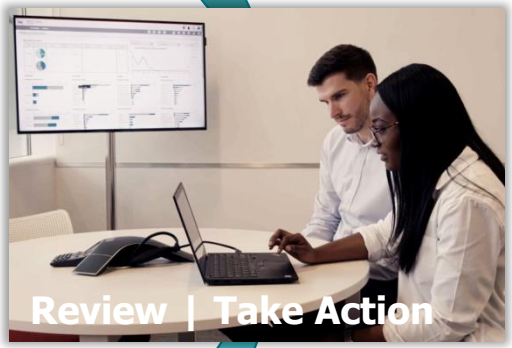
How does it work?

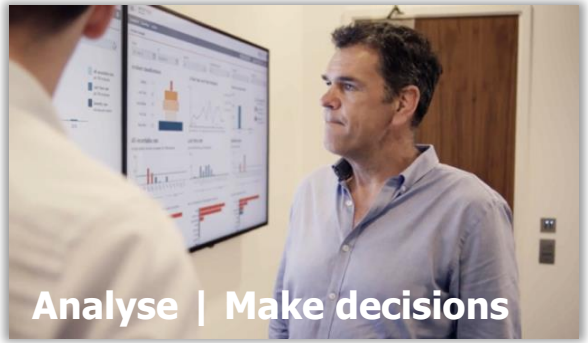
- Information is captured on the app and **flows instantly** to the core system

- From there it can be reviewed and any relevant **action taken**

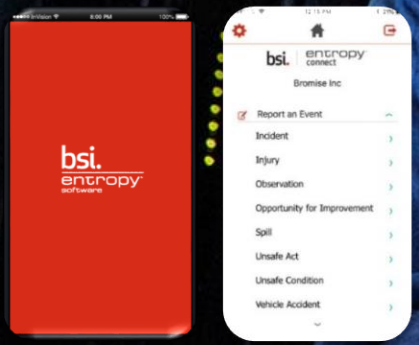
- **Trends can be identified** using analytical dashboards built into the core entropy system







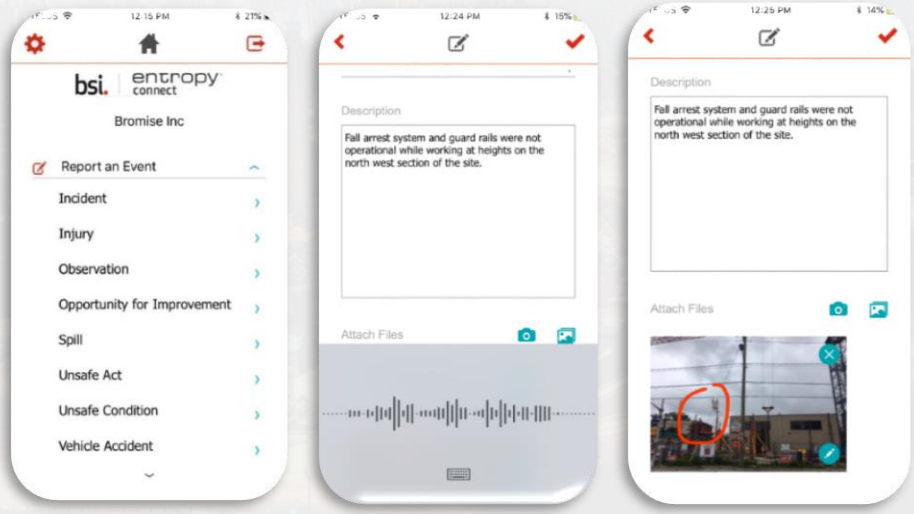
How many at risk situations are reported each day? What about Opportunities?



- Increasing the number of eyes and ears helps with better oversight (risks and opportunities)
- Better oversight with more data leads to improved insights

OVERSIGHT: Establish robust process for evaluating critical risks and improve as the business environment changes

- Look for process to track risks, behaviors and opportunities more widely

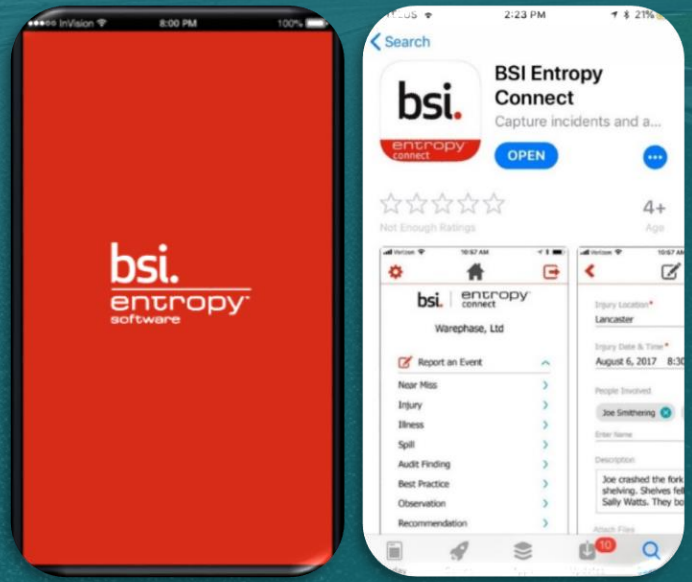


Lets have a look

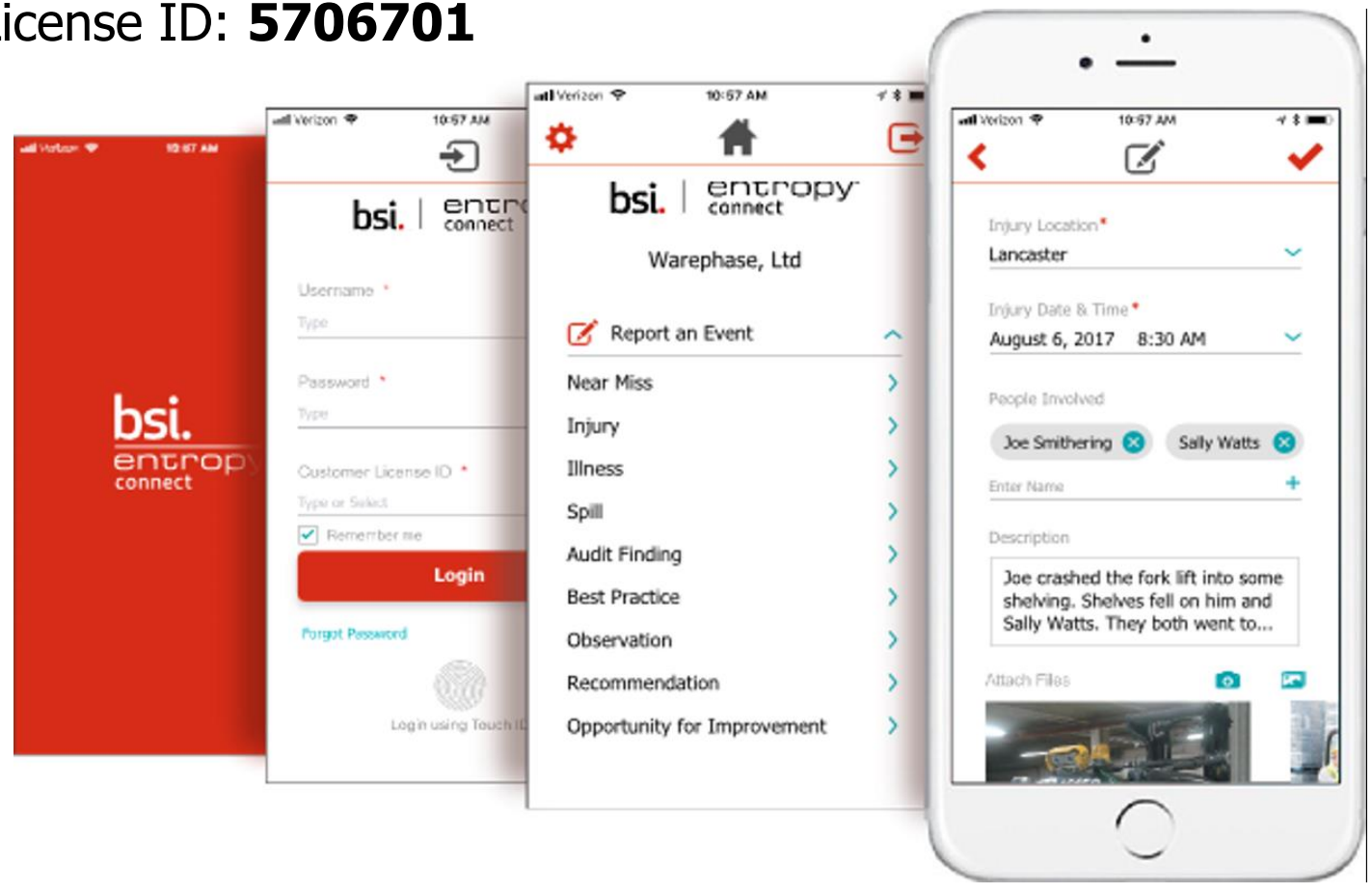
STEP 1: Elect one person in a group to download the BSI Entropy Connect app

STEP 2: Use the login details provided

STEP 3: discuss as a group and spend a few minutes adding potential threats/incidents and log them in the Entropy Connect App



Username: **entropyconnect**
Password: **connect2**
Customer License ID: **5706701**



What to look for:

During this exercise, we want you to identify potential incidents and areas of concern, and document them utilizing the Entropy Connect App.

- Blocking a exit

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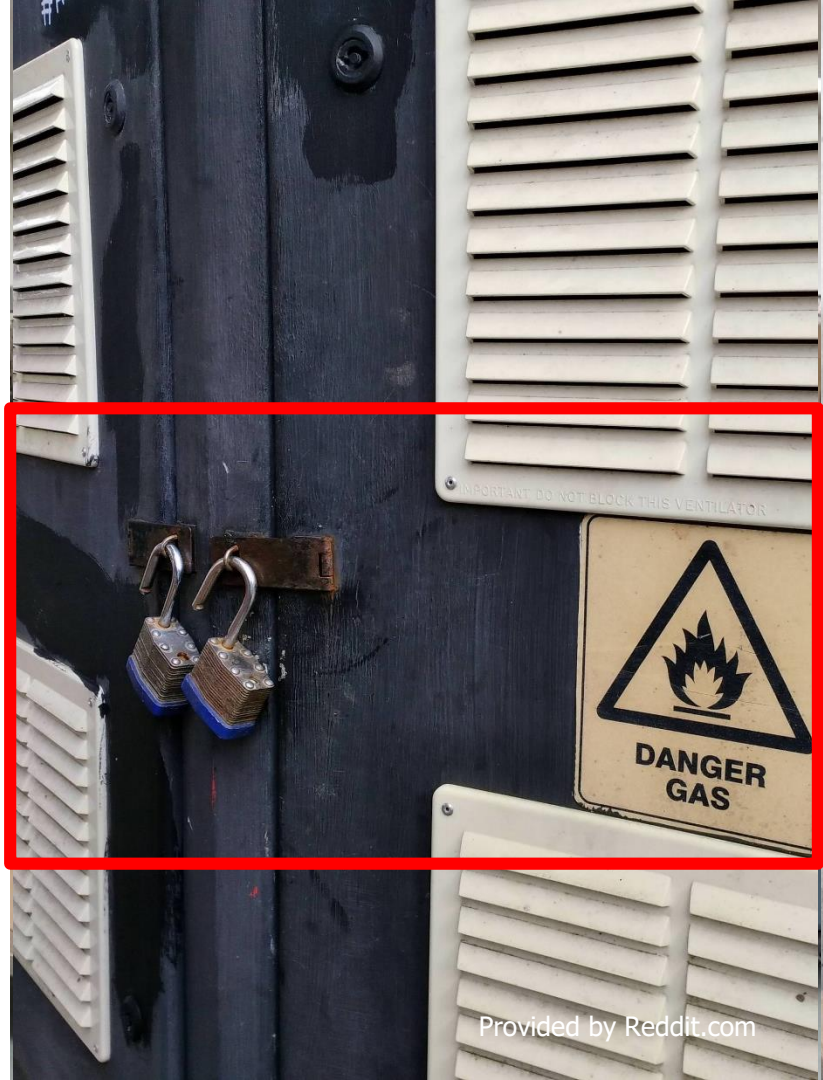
During this exercise, we want you to identify potential incidents and areas of concern, and document them utilizing the Entropy Connect App.

- Blocking a exit
- Utilizing a trash can to transport food

What to look for:

During this exercise, we want you to identify potential incidents and areas of concern, and document them utilizing the Entropy Connect App.

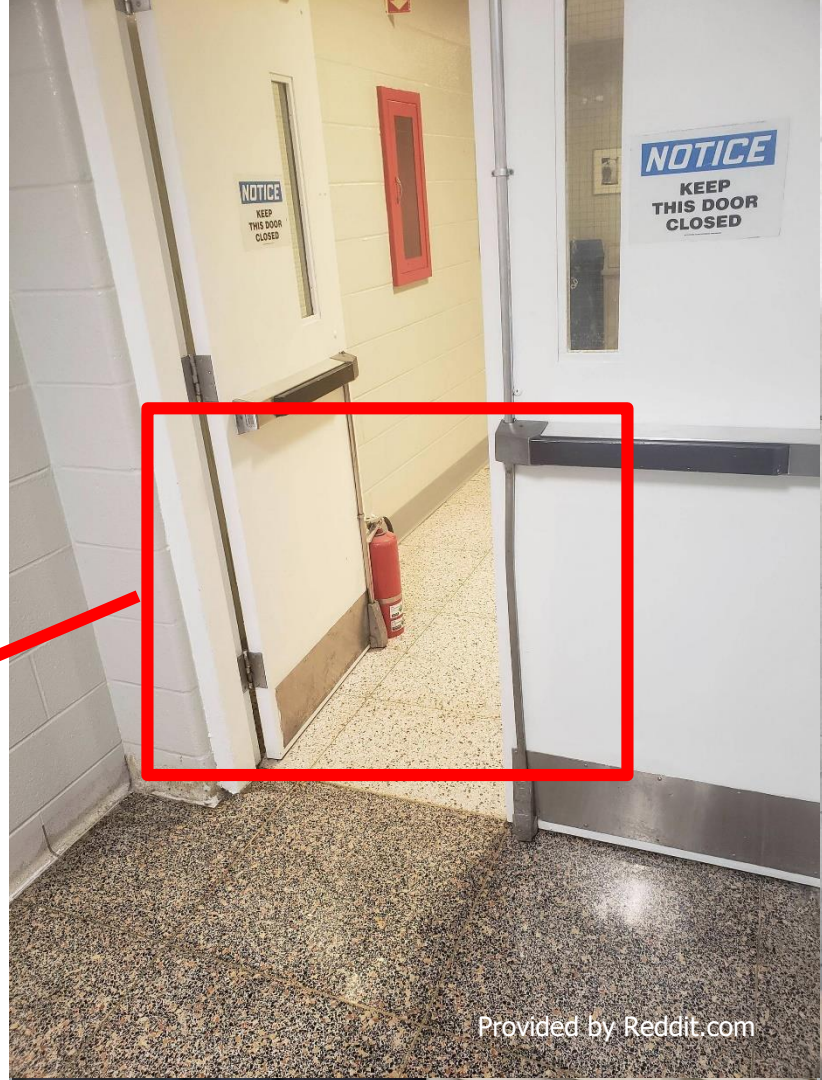
- Blocking a exit
- Utilizing a trash can to transport food
- Not securing dangerous materials



What to look for:

During this exercise, we want you to identify potential incidents and areas of concern, and document them utilizing the Entropy Connect App.

- Blocking a exit
- Utilizing a trash can to transport food
- Not securing dangerous materials
- Misuse of items



What to look for:

During this exercise, we want you to identify potential incidents and areas of concern, and document them utilizing the Entropy Connect App.

- Blocking a exit
- Utilizing a trash can to transport food
- Not securing dangerous materials
- Asbestos

What to look for:

During this exercise, we want you to identify potential incidents and areas of concern, and document them utilizing the Entropy Connect App.

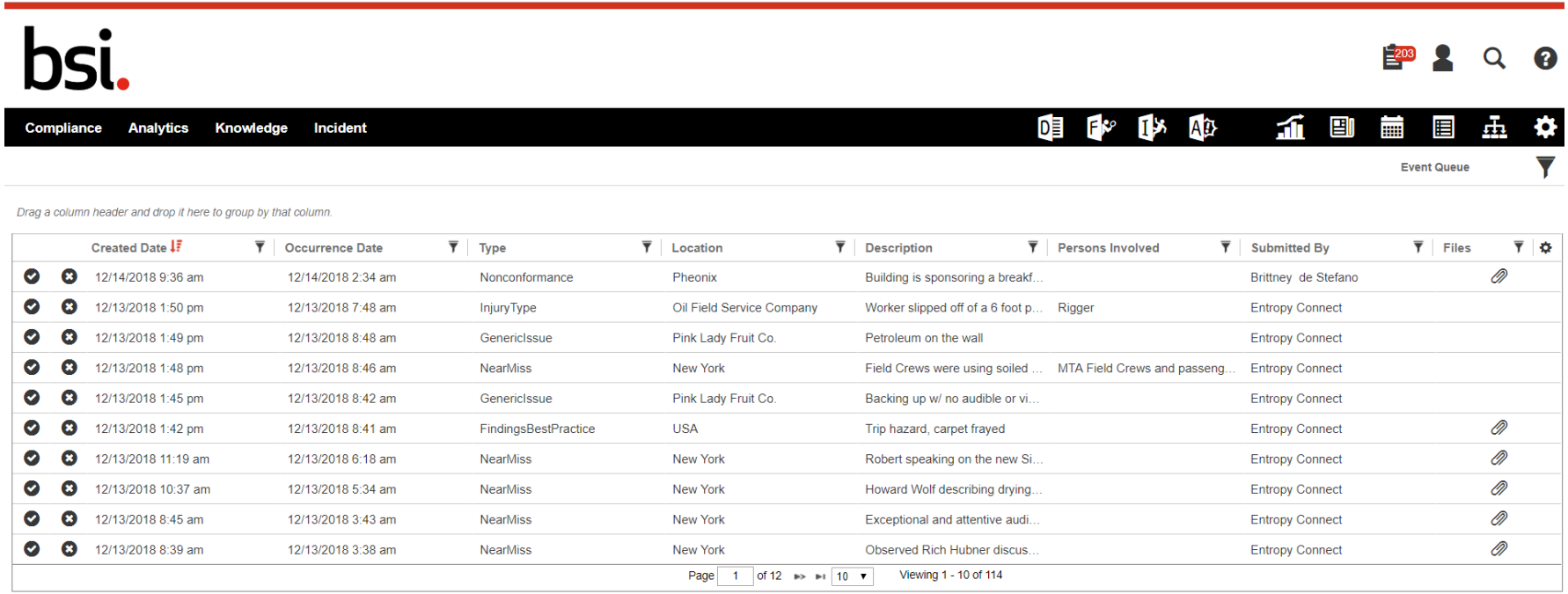
- Blocking a exit
- Utilizing a trash can to transport food
- Not securing dangerous materials
- Asbestos
- Mold
- Silica Dust

What to look for:

During this exercise, we want you to identify potential incidents and areas of concern, and document them utilizing the Entropy Connect App.

- Blocking a exit
- Utilizing a trash can to transport food
- Not securing dangerous materials
- Asbestos
- Mold
- Silica dust

How did it go? What's in the activity log?!



		Created Date	Occurrence Date	Type	Location	Description	Persons Involved	Submitted By	Files
✓	✗	12/14/2018 9:36 am	12/14/2018 2:34 am	Nonconformance	Pheonix	Building is sponsoring a breakf…		Brittney de Stefano	
✓	✗	12/13/2018 1:50 pm	12/13/2018 7:48 am	InjuryType	Oil Field Service Company	Worker slipped off of a 6 foot p…	Rigger	Entropy Connect	
✓	✗	12/13/2018 1:49 pm	12/13/2018 8:48 am	GenericIssue	Pink Lady Fruit Co.	Petroleum on the wall		Entropy Connect	
✓	✗	12/13/2018 1:48 pm	12/13/2018 8:46 am	NearMiss	New York	Field Crews were using soiled …	MTA Field Crews and passeng…	Entropy Connect	
✓	✗	12/13/2018 1:45 pm	12/13/2018 8:42 am	GenericIssue	Pink Lady Fruit Co.	Backing up w/ no audible or vi…		Entropy Connect	
✓	✗	12/13/2018 1:42 pm	12/13/2018 8:41 am	FindingsBestPractice	USA	Trip hazard, carpet frayed		Entropy Connect	
✓	✗	12/13/2018 11:19 am	12/13/2018 6:18 am	NearMiss	New York	Robert speaking on the new Si…		Entropy Connect	
✓	✗	12/13/2018 10:37 am	12/13/2018 5:34 am	NearMiss	New York	Howard Wolf describing drying…		Entropy Connect	
✓	✗	12/13/2018 8:45 am	12/13/2018 3:43 am	NearMiss	New York	Exceptional and attentive audi…		Entropy Connect	
✓	✗	12/13/2018 8:39 am	12/13/2018 3:38 am	NearMiss	New York	Observed Rich Hubner discus…		Entropy Connect	

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Lagging Indicators

Incident Statistics

22 Total incidents
48

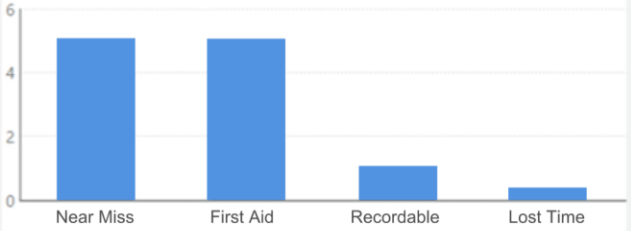
From 2017/01/01 To 2017/12/31

185 Lost Days
342

35 Restricted Days
81

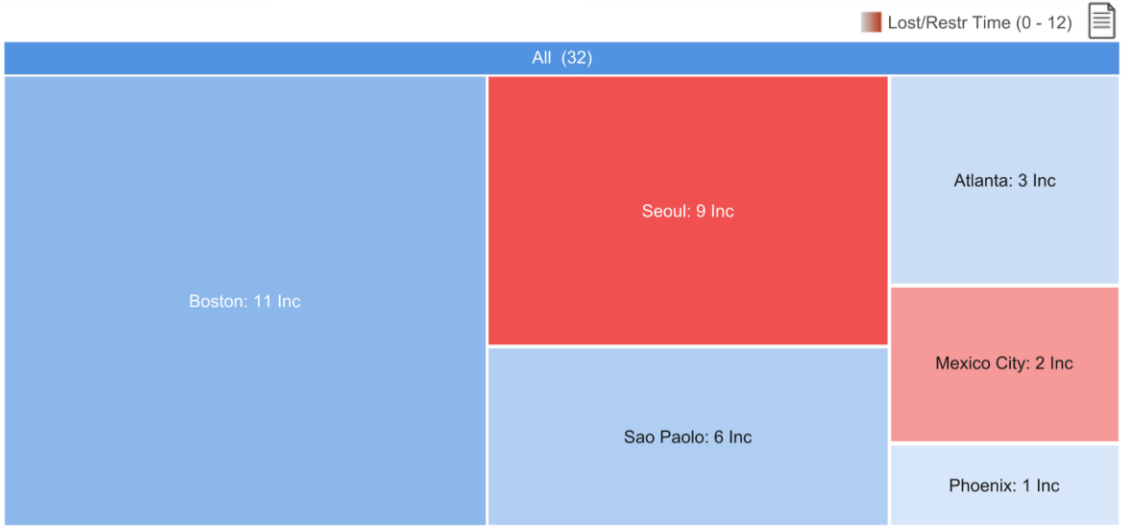
38 Near Misses
92

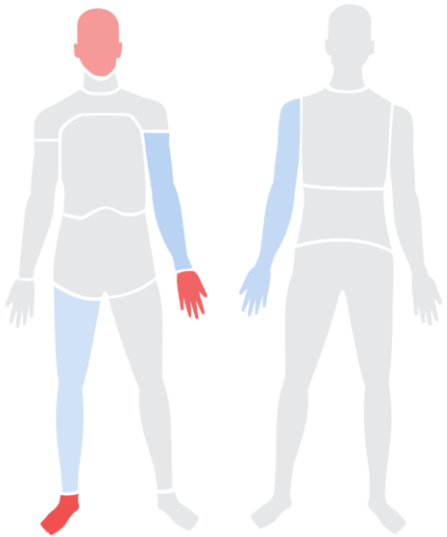
Classifications



Incident Details by Type

General Breakdown | Breakdown by Location

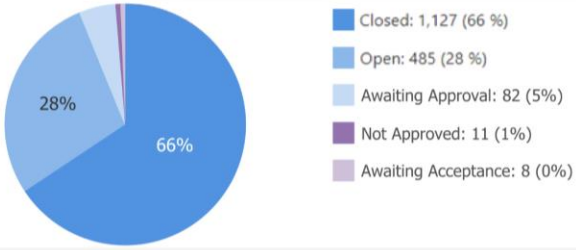




Leading Indicators

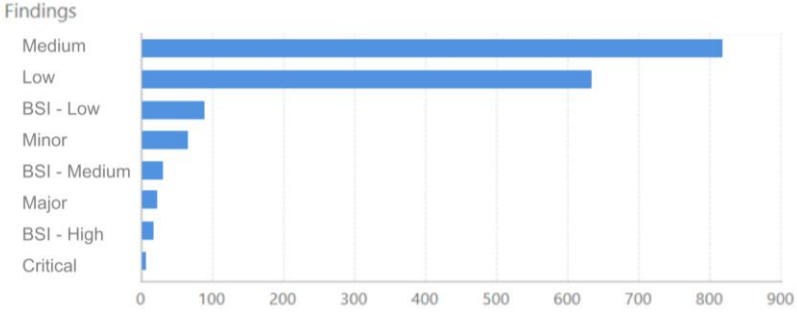
From 2017/01/01 To 2017/12/31

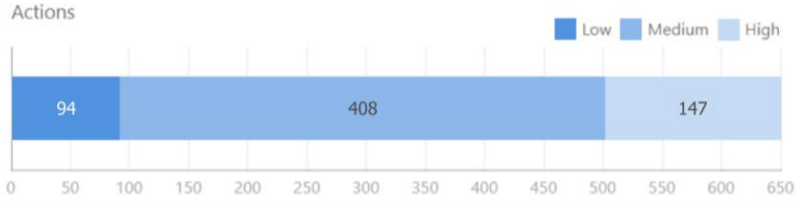
Top 5 Action States | Top 5 Finding States



	Active	Active and Overdue	% Overdue	Due By 2018/06/15	Due By 2018/07/15	Due By 2018/08/14	Completed
Findings	586	330	8%	0	2	0	1,130
Actions	295	279	12%	4	5	1	340

Severity | Location | Origin | Category





Period Over Period

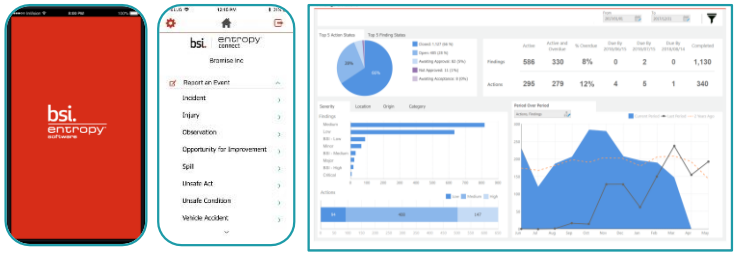
Problems it may help solve

I have difficulty in getting my organization to embrace EHS, Quality and Security

We do not highlight our good practice

Our leadership team don't trust the information they are getting

We are not collecting enough data to generate relevant trends



Our employees want to submit information anonymously

People in my organization feel environmental, health and safety is down to them

It is hard to capture leading indicators of potential incidents and risks

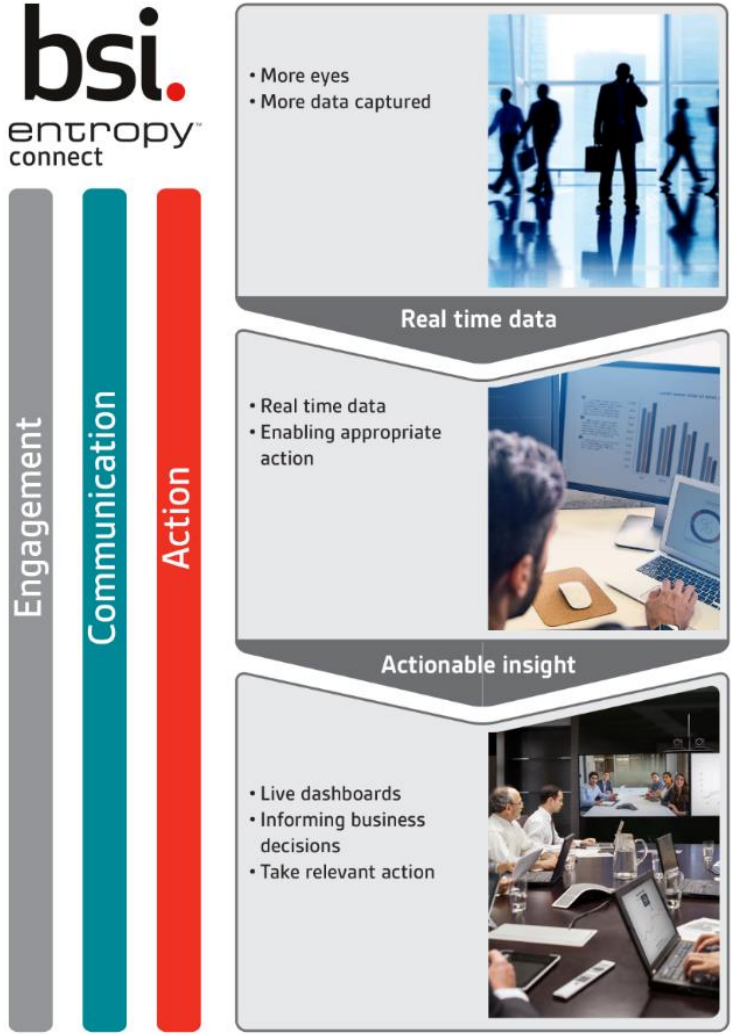
Information does not flow well across our organization

We don't get risks and near misses reported – just incidents and spills

How could this change your organization?

- Engage your entire organization by making it easy for them to capture data and report
- Take action faster by becoming aware of incidents and opportunities for improvement in real time
- Analysis with more data enables you to generate insights and make informed decisions

Help establish a management systems culture across your organization



Project Example

❷ Developing a process for Managing compliance audits and inspections

Support the Auditing and Inspection process

- Schedule recurring assessments and inspections
- Track findings and opportunities for improvement
- Close the loop and drive action
- Keep performance results highly visible

Leading Indicators

Blended ISO 27001:2013 and NIST Audits, version 2.00

From 2017/01/01 To 2017/12/31

Audits Summary

77% Compliant

Total Audits	Total Findings	Total Actions
20	26	32

% Completed by Due Date

97% Audits

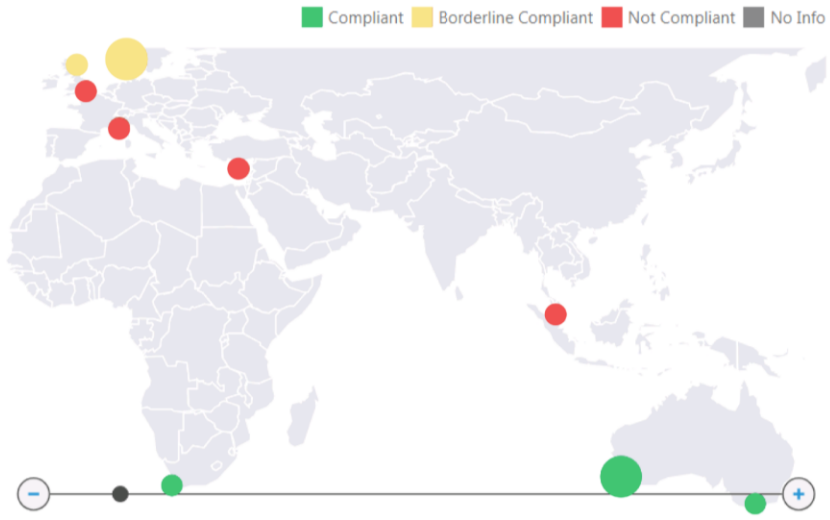
86% Findings

78% Actions

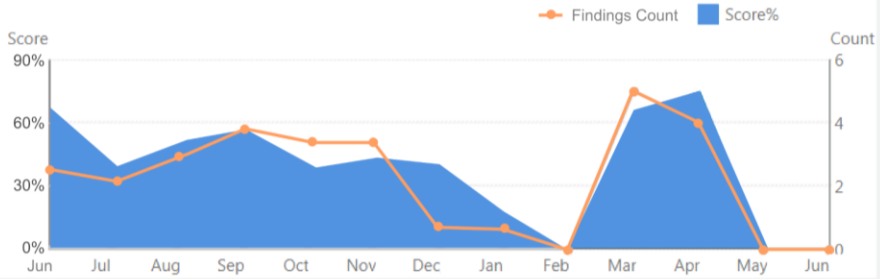
Audits by Status

Scheduled	Cancelled	In progress	In Verification	Completed/Archiv...
2	2	6	2	10
1 Overdue	0 Overdue	2 Overdue	1 Overdue	0 Overdue

Audits by Location/Department

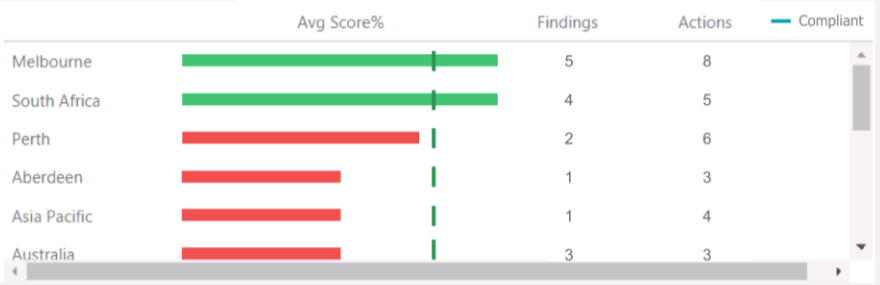


Compliance Trend



Compliance by Section

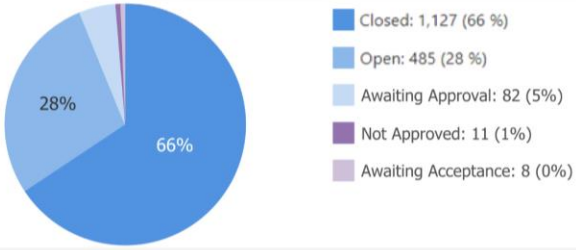
Average Scores by Location/Department



Leading Indicators

From 2017/01/01 To 2017/12/31

Top 5 Action States | Top 5 Finding States



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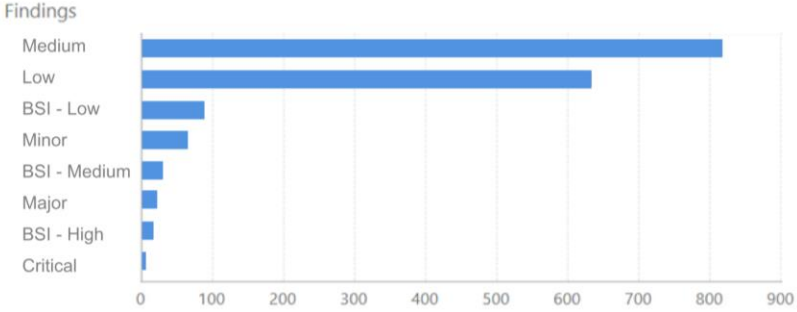
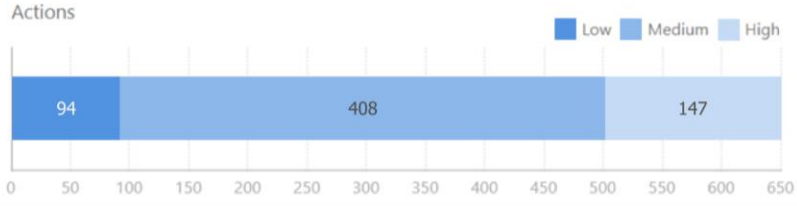




Period Over Period

Project Example

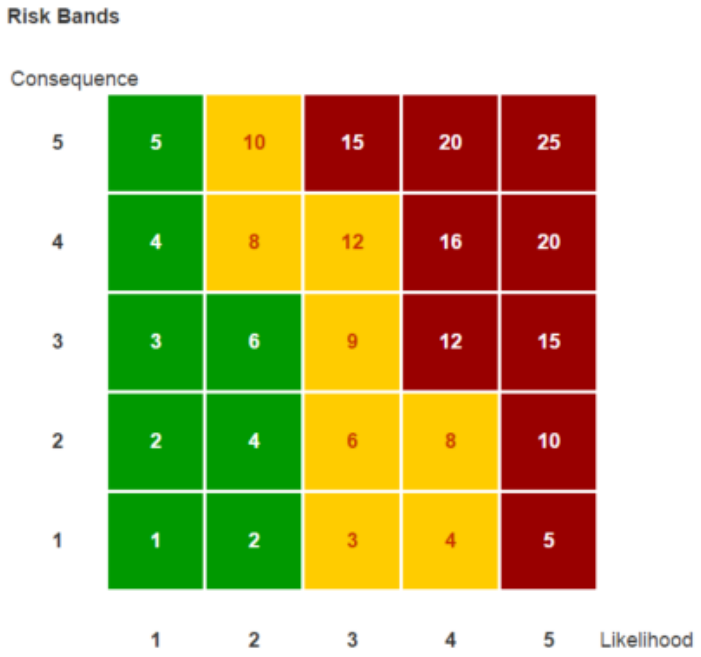
❸ Developing a process for Conducting risk assessments

Current process flow description in words

Detail draft flow for a risk assessment

1. Schedule assessment (with recurrence?)
2. Identify risks
3. Evaluate risks
4. Raise recommendations
5. Allocate responsibility for closure of recommendations
6. Manage/Close out Recommendations
7. Re-assess residual risk post action

- Use assessments for employee awareness



Provide repeatable process for risk assessment

- How do we assess what is risky?
- What controls will help?

Risk	Risk Type	Likelihood	Consequence	Total	Risk Band
Visual difficulties/eye strain, strains and sp ..	Health and Safety Risk	1	3	3	3
Strains and sprains from awkward postures...	Health and Safety Risk	4	5	20	20
Cuts, sprains, strains, trips, and falls	Health and Safety Risk	3	2	6	6
Injuries from materials tipping and falling a..	Health and Safety Risk	5	1	5	5
Slips, trips, and falls	Health and Safety Risk	3	4	12	12
Strains and sprains	Health and Safety Risk	1	3	3	3
Fire	Health and Safety Risk	2	3	6	6
Vehicle accidents and injuries	Health and Safety Risk	4	1	4	4
Tasks Involving Repetitive Motion	Health and Safety Risk	4	2	8	8
Uses VDT/CRT > 4 hrs/day	Health and Safety Risk	2	2	4	4

Conclusion

1. Information technology can add value by streamlining processes and reducing complexity
2. Software can be used to achieve greater communication and efficiency with common management processes (aligned with ISO best practice)
3. Becoming more efficient with common process can free time to focus on performance, accelerate your program and enhance overall effectiveness.

…making excellence a habit.

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