Advanced Technology Connecting Corporate Risk Management with Field Safety Assessment

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Introduction

The world of communications has leapt ahead each year with new electronic connections between people and business. Risk assessments, or safety assessments, have not seen the same progress until now. Safety assessments have been done countless times on paper and, more recently, with the help of computer word processing programs. The newest improvements in safety assessments are now possible because the technologies available today have been brought together to create an assessment system that has been used to document risk observations, automatically score the assessment, and transmit full reports and summaries to multiple parties within minutes of the assessment completion, using a tablet device.

Safety Assessments in the Past… and Present too?
It is universal; we all hate the paperwork (now collected on computers with writing and spreadsheet programs) associated with field safety assessments, inspections, and audits that are a major part of any safety professionals job responsibilities. The documents that are produced help to organize information related to gathering field safety data to show the current situation (or baseline) of our operational safety status. It is a method of making observations of physical conditions, employee activity or behaviors, program aspects in place or lacking, and regulatory requirements. We are documenting the current situation against the expected to help determine what is wrong, the first step to making improvements. This is true for every type business: retail, hospitality, construction, manufacturing, transportation, utilities, education, agriculture, mining, information, finance, entertainment, and government.

Everyone in safety has completed a field safety assessment on paper with a clipboard or notebook at some time in their career. Once the data is collected on paper, there are a number of other steps to complete before the process is done. Many times the data on the paper needs to be transferred into an electronic document on the computer, which means taking additional time typing it into the word processing or spreadsheet program or sometimes into a website. Other steps can include placing pictures taken with a camera into the assessment report, putting the most recent assessment data into a larger database for a cumulative representation of many assessments, filing the assessment report, sharing the assessment report and results with others in the organization, and producing a summary report whenever requested.

The "paper" process (includes word processing and spreadsheet programs) has a number of inefficiencies that are not seen in an electronic web-based process. Some of the more apparent problems:

- Manual process from start to finish
- Assessment may not be the most recent version
- Completion inconsistencies
- Tracking systems located in different places; database not in one location
- Overall performance and results not easily tracked
- Accessibility by management to the assessments and summaries is non-existent
- Higher inefficiencies and administrative costs associated with time needed to prop up an ineffective "paper" process

Safety Assessments Now and in the Future

Electronic web-based assessments are created to capture observation data very economically by increasing the efficiency on the lower amount of time needed compared to the "paper" process. The flowchart below graphically illustrates the difference in efficiency by the reduced number of

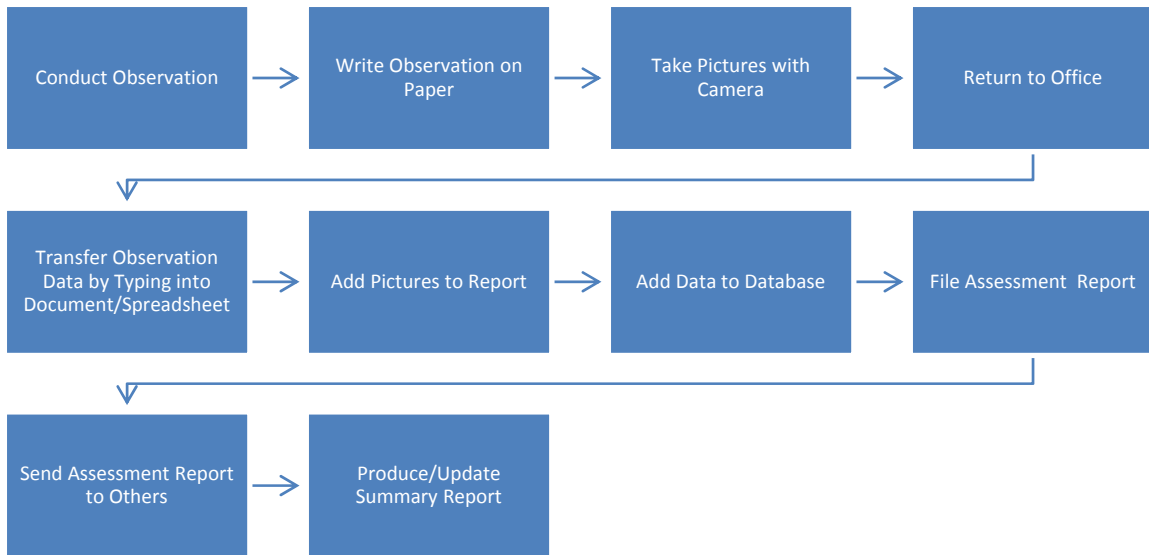steps and time needed to complete an electronic web-based assessment.

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Conduct Observation  →  Write Observation on Paper  →  Take Pictures with Camera  →  Return to Office
                                                                                         ↓
Transfer Observation Data by Typing into Document/Spreadsheet  →  Add Pictures to Report  →  Add Data to Database  →  File Assessment Report
         ↓
Send Assessment Report to Others  →  Produce/Update Summary Report
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Exhibit 1. Paper Process Flowchart

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Download Web Based Assessment  →  Conduct Observation
                                         ↓
Input Observations on Computer Tablet as Made  →  Upload Web Based Data to Website for Automatic Distribution and Summary
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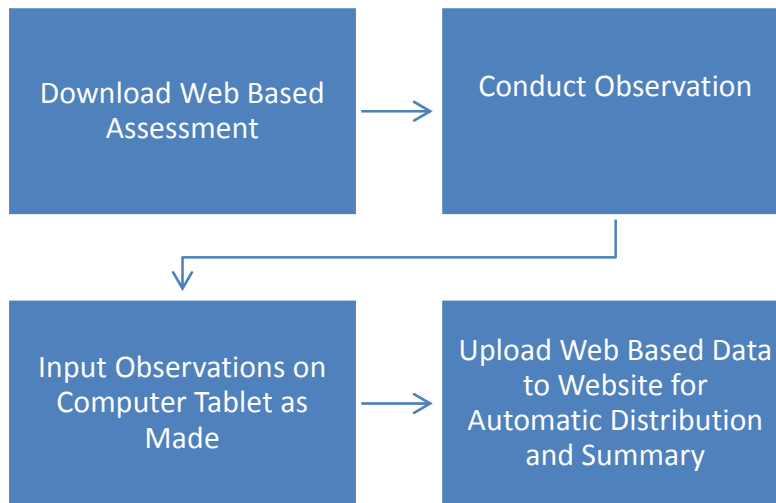
Exbibit 2. Electronic Web-Based Process Flowchart.

The quality of the safety assessment can be improved through observations done by professional consultants or trained personnel. Individuals with a higher level of understanding regarding the operation and knowledge of the exposures being observed will provide a more accurate portrayal of the actual situation being assessed. Professional consultants or trained personnel, as the assessor will also have the skills necessary for inputting their observations into the computer tablet hardware.

Combining Advanced Technologies: Computer Tablets and Web-Based Systems
Developing a web-based system for the assessment observation data in conjunction with a computer tablet has been a very successful approach for a national retail operation with locations across the U.S. and Canada. The combination of the web-based system and tablet hardware allows the portability needed to download and upload assessments wirelessly, utilizing tablets with a built-in camera, and handwriting recognition software that fills in printed comments on the assessments. This combining of the technologies allows nearly instantaneous processing, scoring and delivery of reports via email.

Benefits of a Successful Computer Tablet and Web-Based System Combination
Companies that strive for world-class performance must search out and implement safety management processes that will systematically identify, assess, and mitigate risks in their operations. The time span between the identification and mitigation of risk continues to contract, which means there is less time available for a laborious "paper" assessment process. Progressive businesses know that a proactive approach, combining computer tablets with web-based systems, is the right solution to improve operational performance. Some benefits achieved are:
- Much easier to carry and use a tablet versus notepad and taking notes
- Report can be uploaded immediately and be viewable to the recipients
- Ease of amending and changing of assessment questions
- Allows photos to be added to the assessment report
- Changes can be made much easier for errors, as opposed to a paper document
- Chance of data being lost is minimal
- Chance of information being seen/used by an unauthorized party is less likely
- Much easier to check a box on the tablet screen than authoring an entire assessment report
- Cost savings on labor and more time available to complete further assessments
- Instant access
- Pictures are great; no disputing the issue observed by the assessor
- Reports designed with certain colors (red to identify deficiencies) allow the user to quickly review incoming surveys (no data mining).
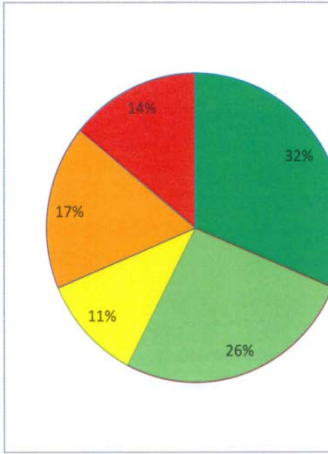
- When a scoring system is used, one can quickly identify the deficiencies and approach various levels of management for remediation and depending on the score, apply discipline.

Summary of Risk Management/Safety Results from Electronic Field Safety Assessments

Automatic processing of data allows corporate management to hold local management accountable to conditions and behaviors with timely evidence.

Restaurant Safety Assessment

Count of Restaurants Assessed	106
Mean score	79%
High Scores – Top 3 scores	100%
	99.55%
	99.32%
Low Scores – Bottom 3 scores	18.52%
	30.86%
	33.33% 355-Howard Street
Average non-compliances answers per Restaurant	8.42
Top Issues of Non-Compliance	60/106 Restaurants -Is the first-aid kit readily available?
	48/106 Restaurants-Are exits and egress paths clear.
	46/106 Restaurants-Are supplies other than paper products stored in the bathroom.
	41/106 Restaurants-Are there tripping hazards and floor damage.
	41/106 Restaurants-Do all fixed shelves maintain a functional width of at least 36 inches.

913- SCORE

Exit Paths and Electrical 40/54

3.1 Were all exits and egress paths completely clear and did all egress paths maintain a 44 inch width path from the front of the store up to the fire exit backstage? 0/14
No

Comments: received late merchandise shipment at time of assessment.

Areas of Improvement: Remove the exit and/or egress path obstacles that were observed at the time of the assessment (If the fire exit backstage is completely blocked this question is a knock out question).

3.2 Do all exit doors open outward (in the direction of exiting the store)? 8/8
Yes

3.3 Do all exit doors have alarms and panic hardware? 8/8
Yes

How the Electronic Web-Based Assessment System Works
The way that an electronic, web-based assessment system works is as follows:

1. A customized assessment is created, or a commercially available assessment can be purchased. Logic and score weighting are assigned for each question.

2. A master template of the assessment is kept on a server, and copies are downloaded onto tablets immediately prior to when the onsite assessment takes place.

3. A professional consultant or other trained individual completes the assessment onsite using only the tablet, adding relevant photographs (or videos) with the tablet's built-in camera and adding descriptive text with the tablet's handwriting recognition software.

4. The assessment is uploaded via Wi-Fi or wireless cellular from the tablet with a confirmation of successful upload. Assessment can be immediately deleted from the tablet for security or privacy needs.

5. Upon upload, separate emails are sent to designated recipients, documenting successful upload. Various levels of security can be added, including a protocol to limit distribution of information per the requirements of client's legal counsel. The uploaded, completed assessment is automatically processed to determine a score and formatted into one of the more customized report formats. The reports contain per-worded recommendations (that can be modified by the assessor) for non-compliant answers.

6. The reports are distributed to a designated list of recipients via email.

FIELD AUDITOR

WEB BASED SYSTEM

MANAGEMENT
VISIBILITY AND
FOLLOW-UP
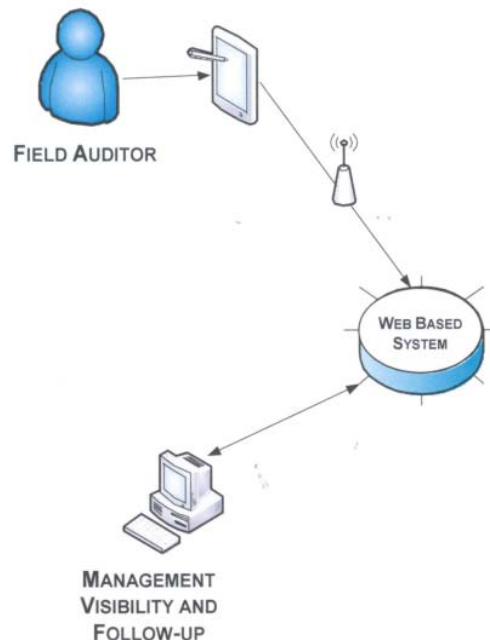
Benefits of Electronic Collection and Distribution

The following are the benefits of electronic collection and distribution:

- A professional assessment/question creation process that ensures that top priorities are assessed accurately and efficiently.

- A safety professional's observations add value to an otherwise standardized assessment.

- The system design (Internet download and upload of assessments, tablet with built-in camera and handwriting recognition, and nearly instantaneous processing, scoring and delivery of reports via email) provides actionable observation data within minutes of assessment completion. What was observed minutes ago can be discussed by legal, risk management, or safety personnel with local management for immediate remediation.

- Automatic immediate processing allows top management to hold local management accountable to conditions and behaviors with timely evidence.

Web-Based System—Sources

A number of web based audit systems are available, ranging from stand-alone, "off-the-shelf" safety audit products to systems that are linked to enterprise risk and claims management systems. Some factors to consider when selecting a system include:

- Flexibility in licensing of users, so the program can expand
- Compatibility of hardware and operating systems for current and future use
- The ability to customize audits and reports to meet the requirements of your operations, both pre-defined and ad-hoc
- Integration possibilities with existing enterprise wide claims management systems
- Before selecting a vendor, have a clear plan in place for using the data. Information will flow quickly. Will your system meet the need?

Hardware and OS

Essential characteristics to look for in a tablet include:

- Lightweight[1]
- Active pen[2] input option
- Display that that is viewable in daylight
- Camera mounted on the back of the device (so the image can be seen on the screen while photographing)
- Ruggedized against accidental drops and rain
- Wi-Fi (or cellular) connectivity
- Long battery life (or a battery hot-swap option)

A Windows OS is a clear advantage that allows existing PC software to be used immediately and significantly reduces software development costs. A solid state hard drive is a worthwhile feature to improve durability and speed boot-up and application starts. Some tablets can integrate a cellular transceiver; this feature is necessary when actual, real-time data collection/observation or online data recording is required in the absence of an available Wi-Fi network.

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[1] No more than about 3.5 pounds.

[2] "Active Pen" input allows better handwriting recognition and reduces "mis-hits" due to inadvertent finger touches.