Accidents happen

Demo Display

This display provides one example of the kinds of graphic instructional materials prepared by Starline Software, Ltd. This demo is part of a three part series describing challenges, opportunities and steps to produce superior investigations. Using these helpers, you can learn to investigate accidents, incidents, fires, explosions, spills and most other kinds of occurrences and turn out effective, efficient, timely, consistent and persuasive work products.

If you would like to know more, contact luben at this web site for information about options.

Welcome

to an

Expedition into the

World of Investigations

An Expedition into the Art of Investigation:

- Its Challenges
- New Opportunities
- Their Realization

This Expedition will explore

1. Challenges facing current investigation practitioners
2. Emerging opportunities for advancing the state of this art
3. Advancing the state of the art for the next century

Part 1
Exploring the Art of Investigation

- **Its Challenges**
- New Opportunities
- Their implementation

Investigation Challenges

- Recognized Challenges
- Emerging Challenges
  - Management origins
  - Research origins

RECOGNIZED INVESTIGATION CHALLENGES

- Any experienced investigator recognizes these challenges
- New investigators should be aware of each challenge
- Every investigation poses these challenges

This truck just exploded and burned next to a hospital...

Someone just fell off a ladder...

What happened?

Why did it happen?

What is our Investigation program?

- Is there an investigation program to guide me?
- Where is the program?
- What are its contents?
- Who has responsibility for it?

How should I prepare

- If I am going to do investigations, what should I learn before I begin to DO investigation?
- What knowledge and skills must I master?
- How can I get the needed knowledge and skills, and
- How will I know when I know enough?

Why investigate?

FIND VIOLATIONS

DETERMINE FAULT

Find CAUSES

FIND FACTORS

GENERATE STATISTICS

SETTLE CLAIM

UPGRADE OPERATIONS

PREVENT SIMILAR OCCURRENCE

PREEPARE REPORTS

SUPPORT LITIGATION

DETERMINE CAUSE FACTOR

DISTRIBUTE COSTS

DETERMINE CAUSE

FIND OUT HOW IT WORKS

ASSIGN BLAME

REDUCE RISKS

What are my objectives?

Before time and money are spent

- Who are my “customers” and what do they need from me?
- How will they use my work products?
- How will my work affect those uses?
- What can I do to increase the value of my work to my “customers?”

Scope of Investigations?

Executives
Managers
Planners

Designers
Builders
Trainers

Operating
Managers
Supervisors

Equipment
Workers
Procedures

Rescuers
Restorers

BEGIN?

END?

COVER ? ? ? ? ?

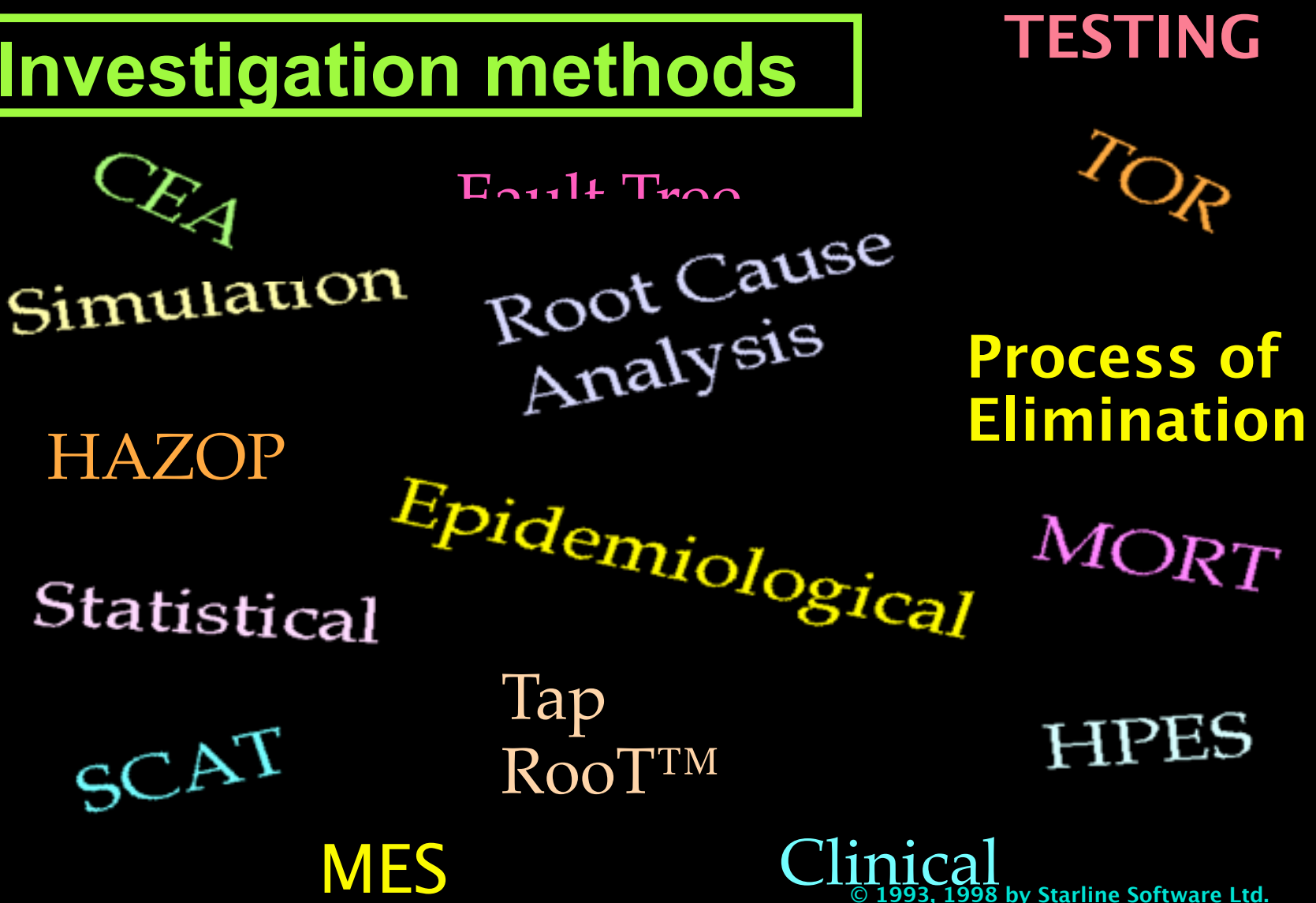
- ALL INTERACTIONS?
- SOME INTERACTIONS?
  - SAFETY PRACTICES?
  - SAFETY PROGRAM?

What should I investigate?

How do I decide where to start and stop my investigation or what to cover

- What should I use as the beginning of the phenomenon I'm investigating?
- What is the end of that phenomenon?
- How do I identify and define the scope of my investigation?

Investigation methods

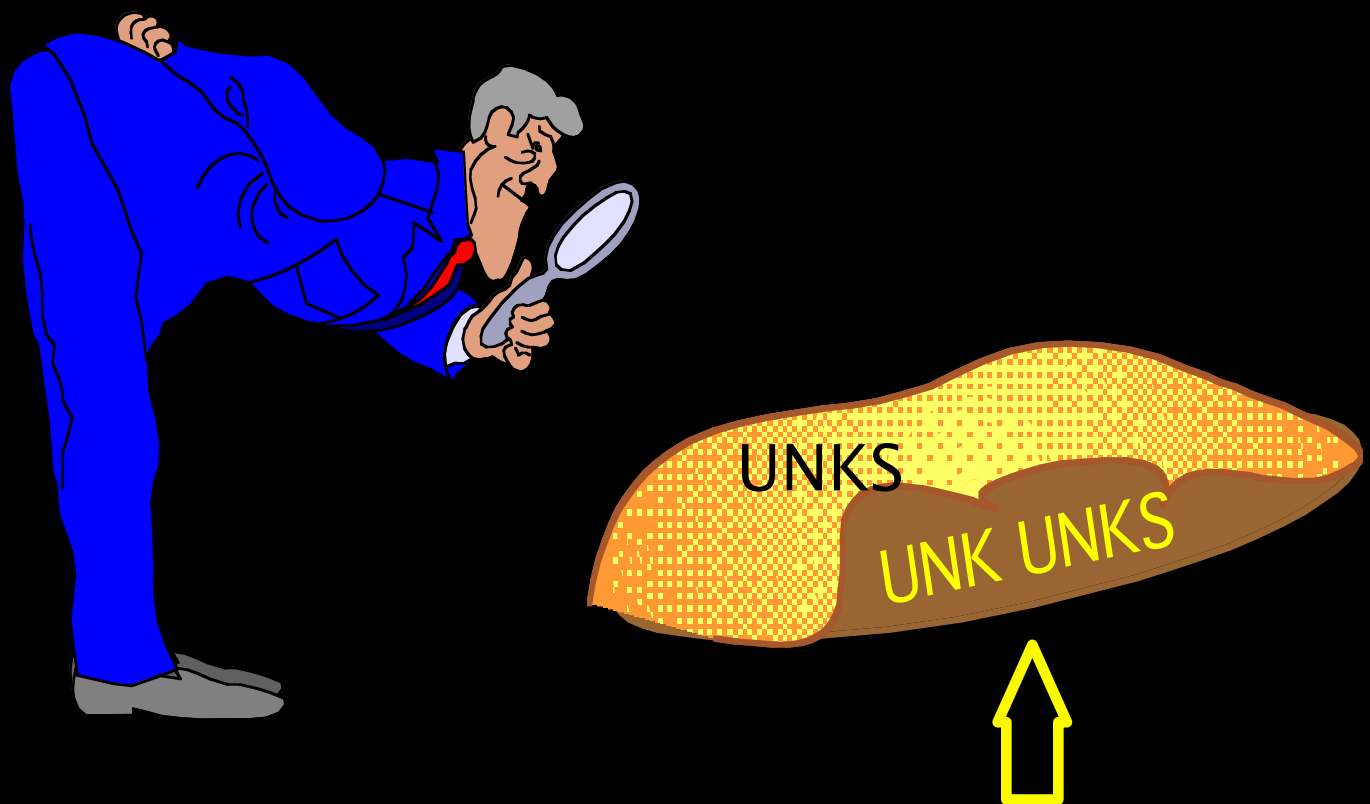


What investigation method should I use?

How do I perform investigations?

- What investigation methodologies are available?
- What are the pros and cons of each methodology?
- How can I recognize the “best” methodology for my needs?

Unknowns and Unknown Unknowns...



During an investigation...

- How can I determine
  - what I don't know?
  - what I don't know that I don't know (the unknown unknowns, or the unk-unks)
  - what questions I should ask?

Recognized Challenges

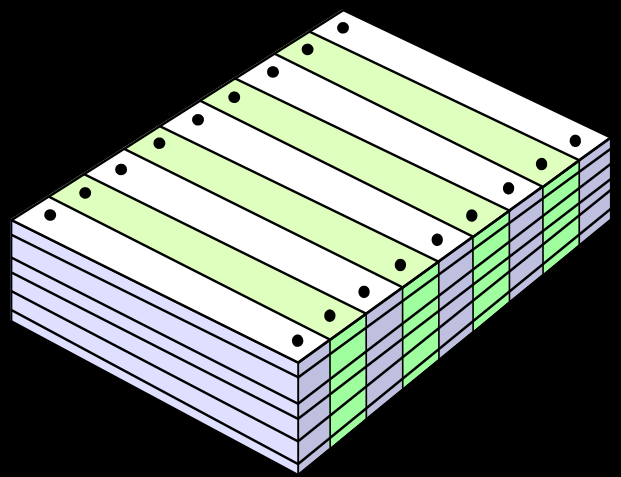
How much data is enough?

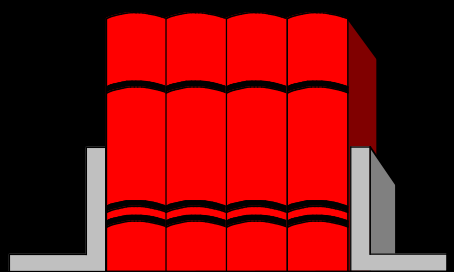
How do I recognize when I know enough?

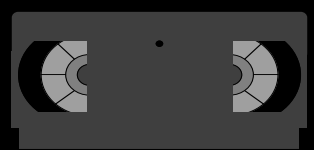
- How can I tell if I need more data?
- If I need more, how do I define what I still need?
- How should I analyze existing data I have to help me make these decisions?

Recognized Challenges

Investigation reports: Deliverables?







What should I deliver?

I will have to produce and deliver something to somebody:

- What specifications do I have, or what should I suggest?
- Who should give me those specs?
- When and to whom should work products be delivered or distributed?

Quality Certifications

The Quality goes in
before the name goes on

Approved

QK

Quality
Sealed

Packed
with
Pride

How can I tell if my work is OK?

Before I turn my work over to someone else, I have to decide if it is of acceptable quality to satisfy myself and my customers.

- **What do I use as quality standards?**
- **What choices do I have?**
- **How do I perform quality checks of my work?**
- **What kind of certification should I affix to my work?**

Summary of Recognized Challenges

- preparation
- objectives
- scope
- methods
- output specs
- quality assurance
- uses

Investigation

Challenges

- Recognized Challenges
- **Emerging Challenges**
  - **User origins**
  - **Research origins**

Emerging Challenges

Two sources of emerging challenges exist. We see challenges driven by

- **USERS**

  Anyone who uses or is affected by outputs from an investigation

- **RESEARCH**

USER-DRIVEN CHALLENGES:

Users are raising new investigation challenges

- Process efficiency
- Product quality management
- Product efficacy
- Functional Integration

Managerial demands

Managers and organizations responsible for investigations are increasingly asking investigators to do better, to

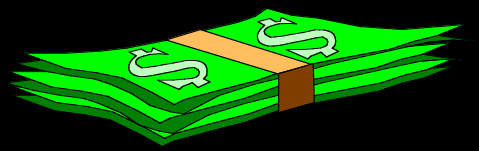
- Be more efficient
- Be consistent
- Get work out faster
- Reduce controversy
- Increase the value of the work

Improve Effectiveness

Users are asking investigators to

- define investigation effectiveness
- identify, measure and show effectiveness
- predict effectiveness of proposed actions
- compare actual to predicted effectiveness

EFFECTIVENESS = ?



Improve Efficiency

Users are asking how efficiently resources are being employed in investigations?

- How are they being employed?
- How could they be employed more efficiently?
- What options offer the best results for the least resources expended?

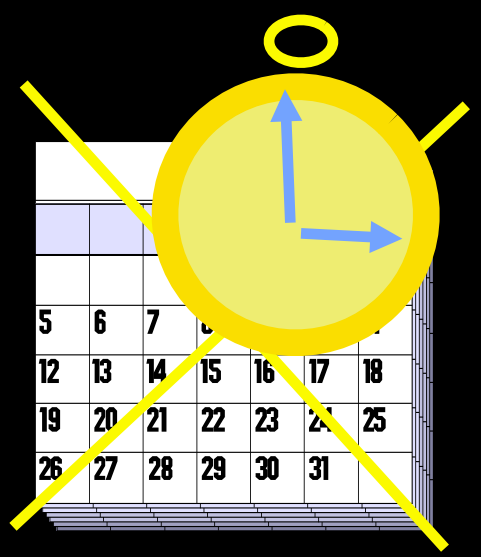
Improve Consistency

Users are looking for consistency

- Within an investigation
- Across investigations
  - Why do inconsistencies exist?
  - How could consistency be achieved?

Improve Timeliness

Users want to know why it takes so long to finish some investigations?



- What are the delays during investigations?
- Why do they occur?
- What is the best way to reduce delays?

Assure Quality

Users, implementing ISO 9000 and Demming, are now asking

- What is present investigation process QA practice?
- What are QA process options?
- How can the best QA option be identified and implemented?

Improve Credibility

Users are asking why everyone can't agree about investigation outputs?

- What produces controversy in investigations?
- How might controversy be reduced?
- What is best way to prove what happened during investigations?

User challenges:

People paying for and using investigation work products keep looking for better results

The Challenge:

How to produce better results?

Investigation
Challenges

- Recognized Challenges
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Research origins

Another source of challenges is the investigation of investigation processes

- Started with accident investigation processes
- Found broader applicability

Main research data sources

- interviews with and observed practices of investigators during actual investigations
- own thoughts and actions while performing actual investigation tasks
- exchanges during report development steps
- observed reactions to reports by users
- published literature on investigations
- personal communications with other researchers

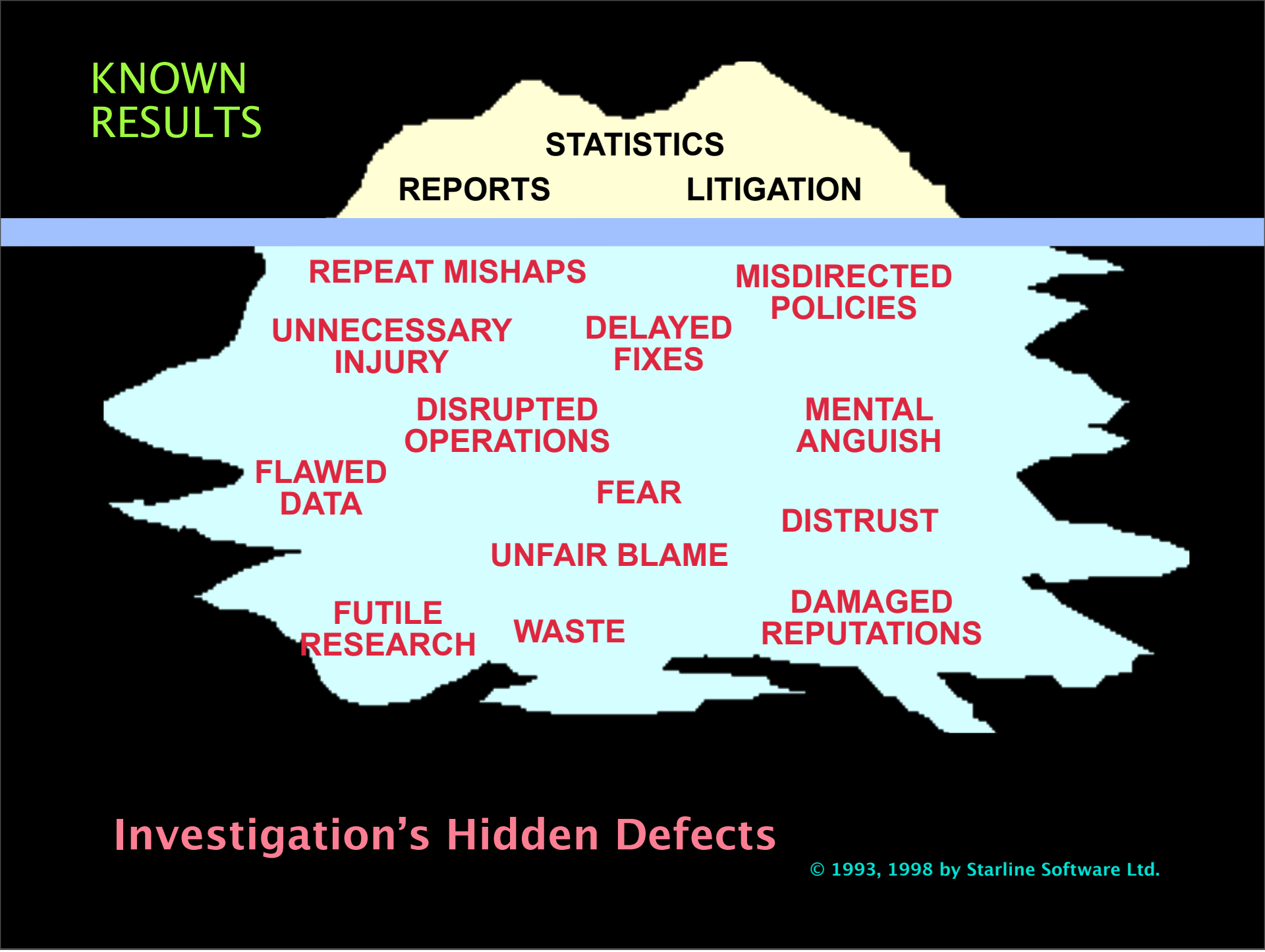
Investigation Research

- Accident and incident investigation processes and results were focus
- Research defined underlying deficiencies, technological needs, and improvement options
- Identified underlying challenge : a new INVESTIGATION TECHNOLOGY

Research disclosed

Investigation defects

- Acknowledged deficiencies
  1. blamed on investigations
  2. investigation problems blamed on something else
- Hidden investigation deficiencies



Symptoms of problems

The symptoms of problems included

REPEAT MISHAPS

UNNECESSARY INJURY

DISRUPTED OPERATIONS

DELAYED FIXES

FLAWED DATA

FLAWED RESEARCH

UNFAIR BLAME

DAMAGED REPUTATIONS

DISTRUST

MENTAL ANGUISH

FEAR

MISDIRECTED POLICIES

WASTE

Problems with current technology

Methodologies that produced deficient results

- lack unifying concepts
- depend heavily on experiential judgments of investigators
- tolerate flawed inputs
- lack objective quality criteria

Borrowed methodologies

Research disclosed a surprise: Methodologies used in investigations have been

- "borrowed" from other disciplines
- adapted empirically by investigators
- assumed to be applicable to investigations

Next research step:

Research then turned to finding out WHY deficiencies exist, by exploring the concepts, models and paradigms underlying current investigation practices, including

- perceptions of the accident phenomenon
- models for investigation processes
- resultant needs

time for a
break before
we get into the findings
about conceptual difficulties...

End of demo.