

Section 3: Gathering and Preserving Data

3.2.2 Types of Data

There are five basic types of data as shown in Figure 3.2:

- People: Interviews with or written statements from witnesses, participants, etc.
- Physical: Parts, chemical samples, personal protective equipment (PPE), structures, raw materials, finished products, etc.
- Paper: Hard copies of procedures, policies, administrative controls, drawings, sketches, notes, performance and operational data, analysis results, procurement specifications, loading specifications, logs, paper charts, correspondence, etc.
- Electronic: Electronic copies of procedures, policies, administrative controls, drawings, performance and operational data, analysis results, procurement specifications, e-mail, loading specifications, logs, correspondence, etc.
- Position: Locations of people and physical data (e.g., valve and switch positions, tank levels)

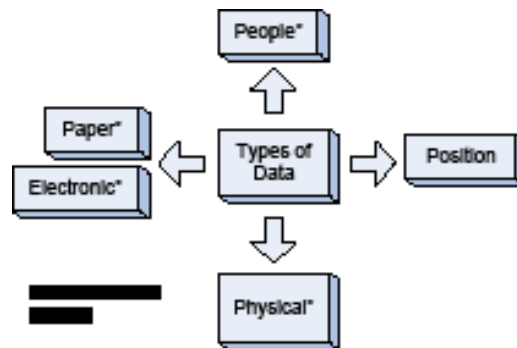


FIGURE 3.2: Types of Data Resources

3.2.3 Prioritizing Data-gathering Efforts

The fragility of data is the prime criterion used to determine the order in which data should be gathered. Generally, the data types from most fragile to least fragile are shown in Figure 3.3.

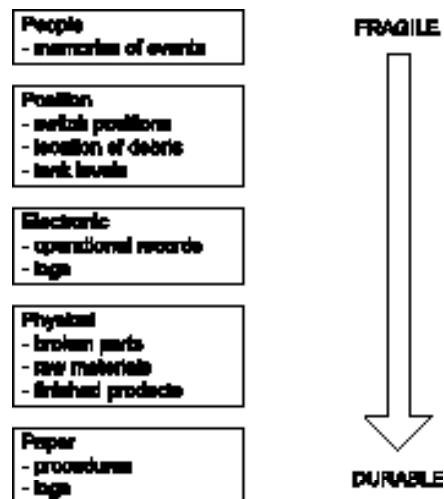


FIGURE 3.3: Fragility of Data Types

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The investigator or investigation team members cannot gather all of the data simultaneously. They must set priorities for what to gather first and what can wait until later. The fragility of the data should be the primary guide in setting these priorities. For example, waiting too long to obtain the data from people can result in changes to the data that can never be recovered.

Table 3.1 shows some of the forms of fragility for the various data types. Some examples of the primary issues for each of the data types are discussed below.

TABLE 3.1: Forms of Data Fragility
Items in italics are discussed in more detail below.

| Data Source | Form of Data Fragility | | |
|-------------------|--|--|--|
| | Loss | Distortion | Breakage |
| People/Position | Forgotten Overlooked <i>Unrecorded</i> | Remembered wrong <i>Rationalized</i> Misrepresented Misunderstood | Transferred Influenced <i>Personal conflicts</i> |
| Electronic | Overlooked <i>Deleted</i> – by design – inadvertently | Altered <i>Diluted</i> Corrupted | Incomplete <i>Scattered</i> |
| Physical/Position | Taken Misplaced <i>Cleaned up</i> Destroyed | Moved Altered Disfigured Supplanted | Dispersed <i>Taken apart</i> |
| Paper | Overlooked Misplaced Taken | Altered Disfigured Misinterpreted | Incomplete Scattered |

3.2.3.1 People Data Fragility Issues

Unrecorded

The personnel involved in the incident will often not remember the details of the incident, including their own actions. The detailed information we ask about during an investigation is often not required for the normal performance of their duties. Therefore, there is little reason for them to pay attention to the details typically being asked for during an investigation. This is true for all personnel, including those who have a strong motivation to do a good job. Think about the last time you drove to work. Do you remember all of the cars you passed? All of the cars that passed you? All of the intersections you went through? Your life depends upon proper performance of this task, yet you cannot remember the details. This is because people normally do not need to remember these details in order to do a good job of driving. Do not be surprised when personnel cannot remember the details of the activities they were performing.

Rationalized

In most cases, raw data are needed from personnel: what they did, what they saw, what they heard. Investigators are supposed to draw conclusions from the data collected. However, personnel often present conclusions (some valid and others not) as part of the information they provide without realizing they are drawing conclusions. For example, someone might say, “The pump froze up at that point because of overheating.” The fact that the pump stopped is not a conclusion; it was a direct observation they made. The fact that the pump was hotter than normal is also a direct observation. However, the conclusion that the pump stopped because it overheated may not be valid. It may have been hotter than normal, but not hot enough to cause the pump to seize. Investigators must carefully separate the observations from the conclusions. In this case, it would be important to understand