

# History of Safety

## 70-year-old document spells it out

BY MIKE LOMBARDI, BOEING HISTORICAL SERVICES

For the moment, though, assume this does happen, even in the next decade. This kind of development would truly deliver the promise of quantum computing in terms of speed, solving currently intractable problems, the replacement of costly physical testing and new design paradigms.

In this situation, companies should think about what their new, most difficult issues would be. For example, if a manufacturing setting has optimization limits that could be easily solved, what would the next big challenge be? And assuming involvement with quantum computing as it evolved to this stage of capability, is there another use for the NISQ computation that is now less capable but perhaps still useful? Could it be retrofitted or adapted for certain types of problems or other purposes?

**Endpoint Likelihood: Medium**  
**Business Value: High**

### What Now ALL THE ABOVE



In all of the previous scenarios, there are focus areas that are useful to think about and work toward solving now while waiting to see which scenario comes true.

First, identify the problem set. Determine the current computation challenges and which ones lend themselves to quantum computation or hybrid methods. Keep track of algorithm development and research results to have a clear sense of how and when the promise of quantum computing could affect work.

As advances are made, there will be a duration in which applying quantum computing capability brings a unique advantage to a company and thus has the potential to offer value before it becomes a given for problem-solving. Prepare for this time by building internal skill sets and application knowledge that will offer an edge. Consider how to educate your current employees and how to contribute to education programs, ensuring a future quantum-literate workforce in five to 10 years.

One could also think about the value derived from the research that advances understanding in quantum physics but perhaps does not lead to advances in quantum computing. For example, could there be additional gain from information about qubit research that didn't pan out, unsuccessful algorithms that didn't produce desired results or hardware advances that could be applied in new contexts?

While there is still much uncertainty about how quantum computing will develop in the long run, it is clear that significant advances have been made, and there is more funding and effort than ever before pushing to advance this technology space. It is worthwhile to take steps now to ensure we are prepared to leverage this capability. **IQ**

#### ABOUT THE AUTHOR

Mama Kagele is a Boeing Technical Fellow in systems engineering and strategic foresight and a real-life rocket scientist.



**During World War II**, the demanding schedules, the number of new workers and the new procedures for mass-producing airplanes required constant vigilance for safety.

#### FIVE GRAND

Builders, riveters and designers at Plant 2 in Seattle surround the 5,000th B-17 Flying Fortress built after the attack on Pearl Harbor. Valuable safety lessons were learned during the war effort.

PHOTO: BOEING HISTORICAL SERVICES

**A safety document** was printed soon after the war and reflects much of what was learned in those hectic times.

The document came straight from Fred Laudan, vice president of Manufacturing, who had overseen the assembly of every Boeing airplane except the original B & W.

RESPONSIBILITY  
of the  
SUPERVISOR  
in the  
SAFETY PROGRAM



BOEING AIRPLANE COMPANY

Each supervisor is directly responsible for the operation of an effective safety program in his organization. In order to assure its success he must:

**PERSONALLY** see that each employee, both old and new, receives proper safety instructions.

**PERSONALLY** see by constant follow-up that safety instructions are understood and followed.

**PERSONALLY** see that each employee does his work in a safe manner and under safe conditions.

**PERSONALLY** see that unsafe conditions are eliminated and unsafe practices are corrected.

**PERSONALLY** see that each employee is provided with the proper safety equipment and that such equipment is properly used.

**PERSONALLY** see that cleanliness and orderliness are always maintained.

**PERSONALLY** see that accurate reports of accidents, injuries and other safety matters are made out and forwarded to the proper personnel.

**PERSONALLY** see that each employee realizes the benefits of working safely.

Each supervisor who is responsible for other supervisors must:

**PERSONALLY** see that each of his supervisors clearly understands and strictly observes established safety regulations.

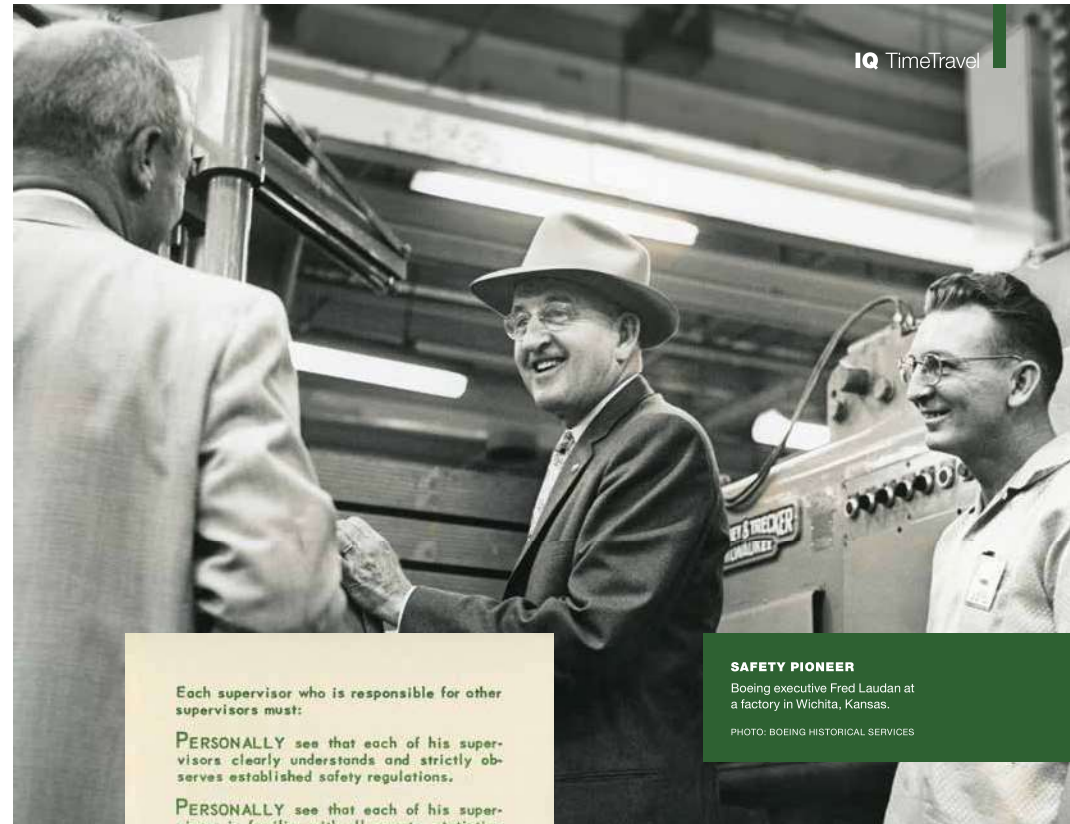
**PERSONALLY** see that each of his supervisors is familiar with all reports, statistics and other data which are a part of the safety program.

**PERSONALLY** see that the safety program is discussed periodically at regular or special supervisory meetings in order to stimulate interest and pass along safety ideas and information.

**PERSONALLY** see that each supervisor is safety conscious.

The Safety Unit can answer any specific questions regarding the safety program. Safety is often common sense. Each supervisor should always remember that safety neither begins nor ends with a set of rules.

*Fred P. Laudan.*  
FRED P. LAUDAN  
Vice President Manufacturing



**SAFETY PIONEER**

Boeing executive Fred Laudan at a factory in Wichita, Kansas.

PHOTO: BOEING HISTORICAL SERVICES

His thoroughness, expertise and leadership were so respected that he was made a member of the board of directors.

**PERSONAL RESPONSIBILITY**

This document outlining safety responsibilities was distributed to supervisors throughout Boeing just after World War II.

IMAGES: BOEING HISTORICAL SERVICES



**FACTORY FLOOR**

Workers gather for a B-50 fuselage join at Plant 2 in Seattle in 1947.

PHOTO: BOEING HISTORICAL SERVICES



*Think . . . . .*

*Talk . . . . .*

*Act. . . . .*

*. . . . . Safety*

Laudan spelled out safety instructions that remain relevant more than seven decades later.

He emphasized that managers had a personal responsibility not only to lead in safety initiatives but also to clearly communicate those initiatives to their team — to **“Think,” “Talk” and “Act.”**

Boeing currently encourages employees to “Seek, Speak and Listen,” showing that the values championed throughout the company’s history continue today. **IQ**



One Day at a Time.

**SAFETY SIGNS**

Reminders at Boeing sites worldwide encourage all to pursue zero injuries and incidents.

IMAGE: BOEING