

Governing Energy

The Two Key Solution

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In our book published last year, the late Dutch Holland penned a section, *Joint Authorization, e.g., Two-Key Requirements*.ⁱ The fundamental premise of the *two key requirement* solution demands that two separate but equal decision makers be spatially or otherwise disconnected so that only when both individuals agree can a high consequence operation be undertaken. In practice, nuclear launch officers are physically distant so that one individual cannot activate the launch system by turning both keys simultaneously.

This requirement makes a lot of sense for an activity that begins a physical process such as a missile launch. Dr. Holland includes other process examples such as planning, decision escalation process and management of certain types of changes.ⁱⁱ

It is less clear how this requirement would work with other high criticality activities such as when one pilot leaves the flight deck of a commercial airliner. However, in the aftermath of the crash of Germanwings Flight 9525 where it is alleged that a suicidal co-pilot refused to allow the Captain back to the flight deck by locking the door, the concept may have some merit.ⁱⁱⁱ

Secure cockpits, one flight attendant in the cockpit when one pilot is out, using the drink cart to physically block the door when it is open and passengers restraining a malcontent passenger all make sense in our terror consumed world. While making sure that two individuals are always in the cockpit assures that if the remaining pilot becomes incapacitated the other person can at least open the door. However, what happens if a deranged pilot attacks and subdues that flight attendant?

This author first addressed the issue of rogue behavior of one or a small number and its potential huge impact on society in 1999.^{iv} This subject was developed in greater detail as it relates to the current issue facing complex organizations in the referenced book section titled, *The power of a single player: One man, one disaster*.^v

While no system is foolproof and certainly all are at risk to a determined foe, the 21st century response to a two key requirement might be based on technology. Biometrics, such as retinal scan, facial recognition, etc. may be a simple and economic solution.

Air crew members can easily “log in” to an aircraft when they board it. If all members are identified by such a system, any two could open the door if necessary. This system could not be overridden by anyone in the cockpit.

The obvious question, “Could a potential terrorist force crewmembers to use their biologics to open the door? Perhaps, but it is less likely. Passengers have a vested interest in the safe operation of an aircraft.

Passengers are a routine barrier to potential aircraft incidents. If your age is over 12-15 (depending on carrier) and physical capable of performing the process of removing the emergency exit door you are authorized to sit in seats next to the emergency exits.^{vi} That passenger is effectively deputized to be part of the flight crew. And who would forget the heroics of the passenger of United Flight 93.^{vii}

History has shown that when commotion arises in the cabin, passenger will step forward and intervene.^{viii} This mitigates the risk that a terrorist can “force” the cabin crew to override a bio-two key.

The upstream oil and gas industry uses the Bowtie method to assess risks, establish barriers to the risks and ascribes reactions to the top event (suicidal pilot).^{ix} A new barrier for all industries operating critical heavy equipment may be a bio-two key.

Do your organizational processes require two keys and what are they?

About the Author

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End Notes

ⁱ Holland, Winford “Dutch” E. and Shemwell, Scott M. (2014). Implementing a Culture of Safety: A Roadmap to Performance-Based Compliance. (pp. 55-59). New York: Xlibris.

ⁱⁱ Ibid.

ⁱⁱⁱ <http://www.latimes.com/world/la-fg-german-jet-crash-door-20150325-story.html#page=1>

^{iv} Shemwell, Scott M. (2011). Essays on Business and Information II: Maximizing Business Performance. (pp. 214-215). New York: Xlibris.

^v Holland, Winford “Dutch” E. and Shemwell, Scott M. (pp. 35-36.)

^{vi} http://en.wikipedia.org/wiki/Exit_row

^{vii} <http://www.history.com/topics/flight-93>

^{viii} <http://www.cnn.com/2015/03/17/travel/united-airlines-flight-unruly-passenger/>

^{ix} <http://www.sciencedirect.com/science/article/pii/S0304389405003808>