



A monthly newsletter of the Energy Facility Contractors Group's Project Delivery Working Group

Issue 24

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'Play it Cool' When it Comes to Ethics

Greetings, PDWG members! Now that the dog days of summer are here, we hope everyone is staying cool in the parts of the country that are experiencing warmer than normal temperatures. Along those lines, this month's edition of the *Practitioner* "plays it cool" by exploring the realm of ethics from two different viewpoints. Frequent contributor Josh Ramirez, a recently minted Ph.D. in project management, provides a brief description of strategic misrepresentation as it relates to behavior-based project management. Then, we look at five major engineering disasters that were caused in part by a lack of proper ethics. So sit back, grab a tall cool one and scroll through the next few pages to see if your ethics are cool, or if they're a little warmer than they should be.

Behavioral-Based Project Management Strategic Misrepresentation

Strategic Misrepresentation is a behavioral phenomenon associated with social pressure and incentives to estimate projects outside of realistic predictions. The phenomenon is also described by Jones and Euske (1991) as the "planned, systematic distortion or misstatement of fact – lying – in response to incentives in the budget process." Flyvbjerg (2008) is one scholar who has studied strategic misrepresentation quite extensively, showing many examples of projects that have gone significantly over schedule and budget as a result of this human factor.

Like organizational silence, strategic misrepresentation is a social psychological phenomenon. It is the result of social pressure from others. For this reason, it must be recognized that cognition is changed because of external individual entities. And as many studies have shown, social pressure is one of the greatest motivators of human behavior (either negatively or positively). People will even conform to the apparent will of others, even if they are complete strangers and they have never met them before. In a classic example of social pressure, experiments have been conducted to see if people would improve their energy use in their homes. The study produced

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Strategic Misrepresentation

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results when people were shown how others in their neighborhood improved their energy use, causing consumers to adjust their behavior because of the apparent social pressure of potentially complete strangers (Sunstein, 2015). Social pressure is a powerful motivator, and it can play out in the form of strategic misrepresentation, resulting in optimistic plans and forecasts by lying to prevent the displeasure of others.

Optimistic forecasts may be linked to factors that also contribute to organizational silence. Strategic Misrepresentation also has some roots in types of social threat that prevent planners and forecasters from predicting accurately because of fear of authority figures disapproving of a realistic plan or forecast.

It is important to note that an optimistic plan or forecast doesn't necessarily mean that optimism bias is at play. The optimistic output can be caused by a whole host of other factors besides optimism bias, per se. Strategic misrepresentation can cause optimistic outputs of plans and forecasts without optimism bias being a cause.

— Author Dr. Josh Ramirez is a Ph.D. and project manager in the Washington River Protection Solutions' Earned Value Management System Compliance and Reporting organization

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UPCOMING EVENTS

<p> AACE International https://web.aacei.org/resources/online-learning/seminars As part of the professional development program, AACE International offers a variety of seminar options that will be delivered virtually in 2021.</p> <p>Project Controls from the Owner's Perspective August 24 – 26, 2021; 11 am – 3:30 pm EDT</p> <p>Advanced Project Controls from the Owner's Perspective August 30 – September 1, 2021; 11 am – 3:30 pm EDT</p> <p> Nuclear Deterrence Summit https://na.eventscloud.com/ereg/index.php?eventid=525816& August 3 – 5, 2021</p>	<p> Decommissioning Strategy Forum https://na.eventscloud.com/ereg/newreg.php?eventid=566519& September 20 – 21, 2021</p> <p> Rad Waste Summit https://na.eventscloud.com/ereg/index.php?eventid=566517& September 22 – 24, 2021</p> <p> Empower User's Group (EUG) Workshop & Training Training – September 20-21, 2021 Workshop – September 22-23, 2021 H&A PC/A Certification Test – September 24, 2021</p> <p>Note: There will also be a Project Controls EFCOG Meeting on Monday, September 20, 2021; 8 am – 5 pm EDT. For more details, contact Lisa Cazalet lisa.cazalet@cns.doe.gov</p>
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JULY 2021
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It is Not One World — What We Do and How We Do It Matters

Five Disastrous Engineering Failures Due to Ethics

Engineering failures due to ethics are not new. From the Johnstown Flood in 1889 to the Fukushima Daiichi nuclear disaster in 2011, engineering failures have been caused by problems in design, construction and safety protocol.

The blame can often be laid at ignorance, miscommunications and, in some extreme cases, indifference or negligence. After many of these engineering disasters however, professionals and leaders have learned from the wrong decisions that were made. Here, we discuss some of the worst engineering disasters and what caused them.

Ford Pinto

Not all engineering mistakes are associated with large-scale feats or impressive architectural marvels. From 1971 through 1976, the Ford Motor Company produced and sold more than 2.2 million Ford Pintos. The automaker set out to make a competitive, affordable car, but late into the development of its design, engineers discovered an issue with the fuel tank. Located between the rear axle and the bumper, the tank punctured and ruptured easily due to the car's design. Ford's engineers recommended an easy fix to the problem, one that would cost an additional \$11 for each vehicle. In spite of this, the company decided to continue with the design as is, both to keep the cost low and to not delay production.



After just a few years on the road, the National Highway Traffic Safety Administration began investigating accidents involving the small car catching fire, but it took an article from the magazine Mother Jones to bring to light the Pinto's danger to the public as well as Ford's previous knowledge of it. After losing a lawsuit, Ford recalled the Pinto in 1978 and fixed vehicles with the original suggested solution. Some estimate that between 27 and 180 people died from the fuel tank issue.

Love Canal

The saga of the Love Canal is one of the first major environmental disasters in the U.S. The project originally began in 1894 when an entrepreneur attempted to build a canal in Niagara Falls, New York, to bring water and hydroelectric power to the city. The project was never completed, but in 1947, the canal was sold to Hooker Chemicals and Plastic Corporation. The company lined the unfinished canal with clay and began dumping chemicals and waste into the then isolated site. In 1953, the site was sold again, but this time to build an elementary school and houses.



Controversy remains over whether Hooker or the Niagara Falls Board of Education, which chose the site in spite of strict restrictions detailed in the land deed, is responsible for the consequences from building on the site. During the construction of the school, homes and a sewer line were built on and through the canal. The clay lining broke and chemicals began seeping into the ground. Eventually a state of emergency was declared by New York. Residents reported miscarriages, birth defects, cancer and other disorders and continued to fight to keep

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Disastrous Engineering Failures

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the site vacant years after they were evacuated. Today, the ramifications of this environmental and engineering failure still impacts building and policy today.

The Hyatt Regency Hotel Walkway

One year after the Hyatt Regency Hotel was completed in Kansas City, Missouri, two walkways suspended over the atrium lobby collapsed in July 1981. It happened in the middle of a dance, with attendees packed on the walkways and the floor below. More than 200 were injured, and 114 people were killed.

A series of decisions and miscommunications were found to be at fault. The original designs for the walkways violated the city's weight-bearing codes: The second and fourth story walkways were suspended by slim sets of rods anchored to the ceiling. However, following a discussion with the fabricator during construction, the decision was made to attach the set of rods supporting the second-floor walkway to the bottom of the fourth—instead of the ceiling. That meant the rods attached to the fourth-floor walkway were supporting twice the weight than the original design intended. A lack of proper communication was blamed for the design change not being analyzed and approved properly, but the engineers involved with the site and the fabricators refused to accept responsibility.³



New Orleans' Levee System

The American Society of Civil Engineers notes that the destruction of the levees in New Orleans during Hurricane Katrina is unique among engineering failures. No one single decision led to the disaster, but rather systemic failures were the cause.

During construction, the Army Corps of Engineers failed to follow their own guidelines when estimating the strength of the soil—and designed the system to withstand low hurricane wind speeds. The height of the levees was another of many engineering mistakes: In addition to using flawed data about land elevation, the Corps also did not take into account the land's natural, gradual sinking. In addition, local, state and federal politics and mismanagement played a role in both the quality and speediness of the construction and in failing to fund and maintain the system.



Across the Gulf Coast, more than 1,800 died and more than \$100 billion in damage was caused. New Orleans was one of the hardest hit regions from Hurricane Katrina. Roughly 80 percent of the city and its surrounding area were flooded.

The Titanic

More than 1,500 people died when the Titanic struck an iceberg in 1912. Over the years, many have researched and investigated the details of its sinking, and it has been determined that a number of design issues and poor decisions led to its sinking in just over two and-a-half hours.

As one of the biggest ocean liners of its day, the Titanic featured 16 watertight compartments. If four of those flooded, the ship would still be able to stay afloat. Six

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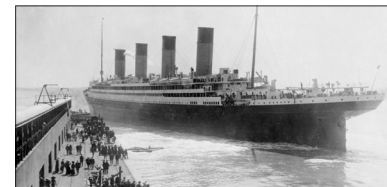
Disastrous Engineering Failures

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compartments flooded though because the bulkheads were not tall enough to hold the water. Some potential causes behind the ship's sinking include designs that failed to take into account its size and mobility, the speed the ship was traveling, ignored warnings about the likelihood of icebergs and other factors.

One flaw that is undisputed though: There were not enough lifeboats for everyone on board. The 20 lifeboats would only have had space for roughly 1,200 people, while more than 2,200 passengers and crew were on board the ship. Additional lifeboats had been removed from the design because the ship owners were worried that it made the ship look unsafe and seemed packed on the deck.

— From the [Case School of Engineering blog](#), Case Western Reserve University



Just for Fun: July's Notable Events and Famous Birthdays

1 — Postage stamps went on sale for the first time (1847), paycheck tax withholdings began (1943), actor Dan Aykroyd (1952) and Olympic track champion Carl Lewis (1961) were born, ZIP codes went into use (1963), actress Pamela Anderson was born (1967), and China regained control of Hong Kong from Great Britain (1997).

2 — President James A. Garfield was shot and died 80 days later (1881), Supreme Court Justice Thurgood Marshall (1908) and racing legend Richard Petty (1937) were born, pioneering aviator Amelia Earhart disappeared (1937), and President Johnson signed the Civil Rights Act into law (1964).

3 — **Idaho became a state** (1890), TV personality Montel Williams (1956) and actor Tom Cruise (1962) were born, and rock stars Brian Jones (1969) and Jim Morrison (1971) died.



4 — America declared its independence from Great Britain (1776), President Calvin Coolidge (1872), football executive Al Davis (1929), former N.Y. Yankees' owner George Steinbrenner (1930) and TV personality Geraldo Rivera (1943) were born.

5 — Circus founder P.T. Barnum was born (1810), the Salvation Army was formed (1865), the bikini made its debut (1946), and singer Huey Lewis was born (1951).

6 — The first MLB All-Star game was played (1933), President George W. Bush and actor Sylvester Stallone were born (1946), and Forrest Gump opened in theaters (1994).

7 — Hawaii was annexed into the U.S. (1898), and Beatles drummer Ringo Starr (1940) and figure skating champion Michelle Kwan (1980) were born.

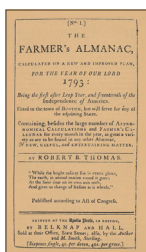
8 — The first passport was issued in the U.S. (1796), and actor Kevin Bacon (1958) and country music star Toby Keith (1961) were born.

9 — Sewing machine inventor Elias Howe (1819), football star O.J. Simpson (1947), actor Tom Hanks (1956) and singer Courtney Love were born (1964).

10 — Brewer Adolphus Busch (1839), tennis champ Arthur Ashe (1943) and singer/actress Jessica Simpson (1980) were born, and Classic Coke was re-introduced after New Coke flopped (1985).

11 — President John Quincy Adams was born (1767), **the Old Farmer's Almanac was first published** (1792), former VP Aaron Burr killed Secretary of the Treasury Alexander Hamilton in a duel (1804), actor Yul Brynner (1915) and boxer Leon Spinks (1953) were born, and the Skylab space station fell to earth (1979).

12 — Comedians Milton Berle (1908) and Bill Cosby (1937), fitness guru Richard Simmons (1948) and actress Cheryl Ladd (1951) were born, the Etch-A-Sketch went on sale (1960), and Olympic figure skating champ Kristi Yamaguchi was born (1971).



13 — Guglielmo Marconi patented the radio (1898), the first World Cup soccer tournament was held (1930), actor Harrison Ford was born (1942), the Live Aid famine-relief benefit concert was held (1985), and the Black Lives Matter movement began (2013).

14 — Bastille Day occurred in France (1789), dynamite was first demonstrated (1867), famous outlaw Billy the Kid was killed (1881), and President Gerald R. Ford was born (1913).

15 — Artist Rembrandt was born (1606), vulcanized rubber (1844) and margarine (1869) were patented, and singer Linda Ronstadt (1946), wrestler/politician Jesse Ventura (1951) and actor Forest Whitaker (1961) were born.

16 — Football coach Jimmy Johnson (1943), and actor Will Ferrell (1967) were born.

17 — The first dental school in the U.S. opened at Harvard U. (1867), actor James Cagney was born (1899), the air conditioner was invented (1902), actors Donald Sutherland (1934) and David Hasselhoff (1952) were born, and Disneyland opened (1955).

18 — South African President Nelson Mandela (1918), astronaut/politician John Glenn (1921) and golfer Nick Faldo (1957) were born.

19 — The Rosetta Stone was found (1799), and the revolver was invented (1814).

20 — **Guitarist Carlos Santana was born** (1947), and Apollo 11 landed on the moon (1969).



21 — Author Ernest Hemingway (1899), actor Don Knotts (1924), former Attorney General Janet Reno (1938) and actor Robin Williams (1952) were born.

22 — Actor Danny Glover and musician Don Henley (1947), and actors Willem Defoe (1955) and David Spade (1965) were born.

23 — The ice cream cone was invented (1904), and actor Woody Harrelson (1961), infamous intern Monica Lewinsky (1973) and actor Daniel Radcliffe (1989) were born.

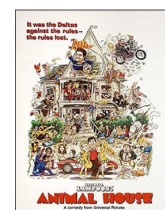
24 — Aviator Amelia Earhart (1897), basketball star Karl Malone (1963), baseball star Barry Bonds (1964) and singer/actress Jennifer Lopez (1970) were born.

25 — Football star Walter Payton (1954) and Louise Joy Brown, the first test-tube baby (1978), were born.

26 — Singer Mick Jagger (1943), actor Kevin Spacey (1959) and actress Sandra Bullock (1964) were born.

27 — Bugs Bunny made his debut (1940) and baseball star Alex Rodriguez was born (1975).

28 — The First World War began when Austria-Hungary declared war on Serbia (1914), cartoonist Jim Davis was born (1945), and **Animal House opened in theaters** (1978).



29 — Walt Disney's "Steamboat Willie," featuring Mickey Mouse, premiered (1928), and NASA was created (1958).

30 — Auto maker Henry Ford (1863) and "The Governator" Arnold Schwarzenegger (1947) were born, and Medicare was signed into law (1965).

31 — Actor Wesley Snipes (1963) and author J.K. Rowling (1965) were born.