



Selling Safety

Marketing safety can be compared to the Greek myth in which Sisyphus, the King of Corinth, was punished in Hades by having to roll a huge stone uphill, only to have it roll down repeatedly as soon as he had pushed it to the summit. A quick review of negative opinions that make selling safety a task like that of Sisyphus tells us that the introduction of alternate safer design is often greeted with the comment, “*Safety does not sell.*” Many people have a built-in mindset that rejects design-based safety. They feel that *accidents can be avoided with simple common sense* and believe accidents are the result of bad luck and are the cost of progress. Few people are aware that accident prevention is a “Gemini function” with twin approaches:

- The first “twin” is the most-used concept in avoiding accidents: *All that is required is to modify human behavior.* As Sisyphus found, this twin relies on behavior modification to avoid a hazard, but discovers that the hazard, like the stone, can roll back down because it has not been eliminated.
- The second “twin” is usually overlooked; it requires the hazard to be eliminated by design.

“Selling” safety requires that the public be told that when a hazard is eliminated by design, the accident cannot be repeated. But there are a number of reasons why safety does not sell. Usually, management takes the easy way out and relies on insurance to pay for the loss. This allows speculation as to what the risk will be for the occurrence of unidentified hazards causing injury, death or damage. Management is now no longer troubled with the task of hazard identification

and prevention. Those responsible for the purchase of equipment or machines are often uninformed about available safety appliances or safer designs. These should be specified in purchase contracts. Developers of projects

usually lack the expertise to ensure safety and environmental hazard prevention. Safety by design is an invisible function. All enterprise needs the expertise of system safety engineers to overcome people and environmental hazards with green engineering.

The “Catch 22” is that a change of emphasis has evolved with the development of automation. This has given priority to design-based safety. The 21st century will bring workerless production, just as we hear today about driverless cars. The seeds

of this change were planted in the 1960s, when the Department of Defense implemented MIL-STD-882 for system safety. The development of sophisticated electronics to guide drones, missiles and surveillance systems was a top-secret effort requiring military security clearances. Today, we are experiencing how, little by little, system safety is being incorporated into our economy. Our National Transportation Safety Board (NTSB) started with airline safety and then promoted legislation for Positive Train Control (PTC) to overcome inherent lapses in operating engineers’ consciousness. The British are adopting Business Information Modeling (BIM), which copies the U.S. Army’s civil districts’ public works program called Construction Operations Information Exchange (COIE) and includes hazard identification and prevention at the time of planning and design. Building plans in three dimensions afford bigger, better and faster construction, as these plans show what the completed project will look like. This activity makes hazards visible.

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Automation is liberating the workforce from monotonous and dangerous employment, and is providing opportunities in higher-paying installation, operation and maintenance of automated production positions. The public has little awareness of the nature of hazards, so they can be identified.

A hazard is always in one of three modes: dormant, armed or active. Many people believe it is only by chance that a hazard will become active, making prevention unnecessary. A significant concern is how much harm the hazard will cause when it becomes active. A clear example of this is when a raised crane boom comes into contact with a power line. The ability to raise a crane boom so it can reach a power line is always present. When a crane is used in a location in which there are no power lines, the hazard is *dormant*; when it is used where a power line can be reached with its raised boom, the hazard is now *armed*; when the boom strikes a high-voltage overhead power line, it is *active*. The prediction of the harm that the active hazard will cause is another uncertainty. It may only cause momentary sparks, but it can also cause severe injuries or even deaths, costly property damage or a huge electric power outage. Hazard avoidance training does nothing to eliminate this hazard.

Advocates of hazard avoidance rely primarily on modifying worker behavior, but this does not remove the overhead power lines from the crane's work site, nor does it provide insulated links to guard the workers guiding the load from the flow of high voltage or provide workers with a proximity alarm device that would

warn that the boom is near a power line. Sole reliance on worker behavior is not a reliable measure to prevent wrongful injuries or death from crane boom/power line contact. This illustration is one of countless examples of how sole reliance on personnel behavior modification is like repeatedly pushing a huge stone uphill and having it roll back down. When a hazard is avoided by worker training, even though it is obvious that the hazard could have been eliminated, the public loses confidence in safety in two ways:

- It knows that training alone isn't the answer.
- It considers the safety profession ineffective, as the hazard was not discovered and removed.

The only reliable means of preventing costly occurrences is to use the second "twin": requiring design-based safety. Because a hazard can be in one of the three modes described previously and because of the uncertainty of the consequences, the emphasis shifts from hazard identification and prevention to speculating that a loss is only by chance and may arise from unknown occurrences. Risk management focuses primarily on developing a safety culture that centers around behavior-based safety, with little emphasis on hazard prevention through design-based safety. It is at this point that some people become dissatisfied with the lack of emphasis on hazard removal or by not providing accessories that either warn of the hazard or intercede to prevent injury. Often, managers just hope that they can continue to be lucky.

With all the negative aspects around the functional administration of safety, most management leaders are totally blind to this shift to automation. The reduction of defense spending is curtailing opportunities in the development of military systems. Both business leaders and specialists who have experience in developing system safety now have a new challenge to transform their expertise in design-based safety from military applications to civil automation. Many steps can be taken by system safety specialists to tap the bonanza of the switch to automation with design-based safety. The old academic adage to “publish or perish” rings true for the system safety specialist. Trade publications are always looking for articles on how safety features reduce costs, injuries or death.

System safety specialists have unique knowledge that is marketable in teaching engineers in conventional disciplines how to expand their practice by identifying hazards at time of design and by providing alternate, safer designs. New career paths are opening for specialists to be retained by companies that are providing design-based automated systems. Even personal injury attorneys understand the need to inform courts and juries as to how design-based safety eliminates hazardous conditions and circumstances.

The marketing of safety to overcome the Sisyphus syndrome needs the expertise of public information specialists. Progressive business management either has this staff capability or can expand this effort by retaining nationally recognized authorities on public information. When public relations is funded to ensure publication in major radio, television, newspapers and magazines, a dramatic public interest can be developed. It is a well-documented fact that executives and top managers do read and improve their own activities and operations from what is in publications such as *The Wall Street Journal*, *Business Week*, *The Economist* and *Engineering News Record*. Members of the general public who want to stay current read *The Atlantic* and *The New Yorker*. Public relations experts know how to shape the public's awareness to benefit their clients. Public relations could include interviewing system safety specialists to develop their identity as individuals with special knowledge on how to protect people's lives with design-based safety, while improving the profit margin of the enterprise. Public relations professionals know where to target the placement of advertisements and text to motivate acceptance by those who should adopt design-based safety.

But public relations is not a do-it-yourself activity. In addition to providing a well-funded program, some of

the large international design-and-build construction and mining firms have substantially increased their operations by first training all their engineering and construction management staff members in the basics of design-based safety. This method of “selling” safety to key staff engineers and construction managers provides them with the expertise to sell their safety to their clients. They are then able to expand the scope of their proposals and activities to include design-based safety. The growth of professional societies is becoming dependent on their choices to ensure members personal development and success, and on promoting educational opportunities and public awareness of their members' expertise in design-based safety. These organizations would do well to retain public relations firms to tell the business world and the public about the accomplishments and special skills of their members.

The task of selling design-based safety as a marketable enhancement of products, services and systems is unlimited. Every enterprise can benefit by selling design-based safety as a critical component of their activity. As every community becomes more dependent on technology, more and more people are becoming dependent on design-based safety. Public opinion can be like a huge rock being rolled uphill. When things go wrong because of hazardous design, the huge rock of public opinion rolls back down the hill. No longer will the public tolerate an absence of transparency and allow themselves to be the guinea pigs in identifying hazardous conditions or circumstances. Nor will blaming someone else as a scapegoat suffice as an excuse for not providing safe design. Selling design-based safety is rapidly becoming a marketable commodity. The recent poisoning of the water supply in Charleston, West Virginia is a great example of how toxic chemical storage tanks need to be placed within a watertight basin so that if a leak occurs in a tank, the toxic liquid cannot contaminate the soil and water table. The limited scope of safety professionals' being restricted to prevention of worker injury and death needs to be expanded to include the public, product safety and environmental safety. To sell safety effectively, we need to use examples of the second Gemini twin's ability to eliminate the hazard. The traditional method of behavior modification does not work, as it is vulnerable to the Sisyphus syndrome of the hazard repeatedly causing injury or death. Many safety heroes, whose work products have eliminated hazards by design, have never been recognized. Telling the world about these heroes who have developed safety features is the best method of selling safety. ☺