

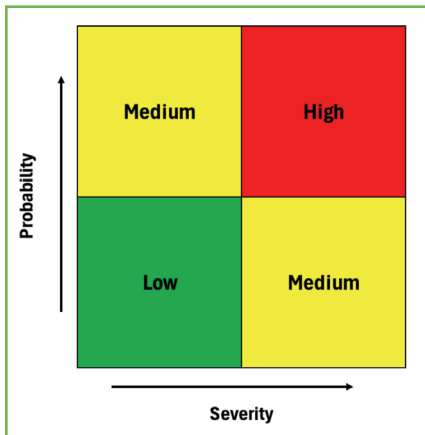
Calculated risks: An introduction to risk assessment in entertainment

OVER THE MILLENNIA humans have developed a set of complex and highly effective mental and psycho-emotional mechanisms to quickly assess and rapidly respond to perceived threats. The survival of our species up until relatively recently was heavily dependent on these mechanisms functioning largely on the subconscious level. When a twig snapped in the forest, the prehistoric humans who ran became our ancestors, not the ones who stopped to wonder at the likely source of the noise.

Because of this evolutionary force, we tend to perceive and respond to potential threats in a manner that doesn't always align with the actual risk that the threat presents. That is, we generally favor our instincts over our reason when assessing risks.

That's not necessarily a bad thing. Many of us tell our friends and family to "listen to their gut" when they feel uneasy about a situation; studies have suggested that highly experienced professionals combine intuitive and analytical thought in a particularly effective decision-making process. Our instinct—our gut—is a valuable survival tool that we should not dismiss lightly.

However, our gut also gets a lot wrong.



A simple 2x2 matrix.

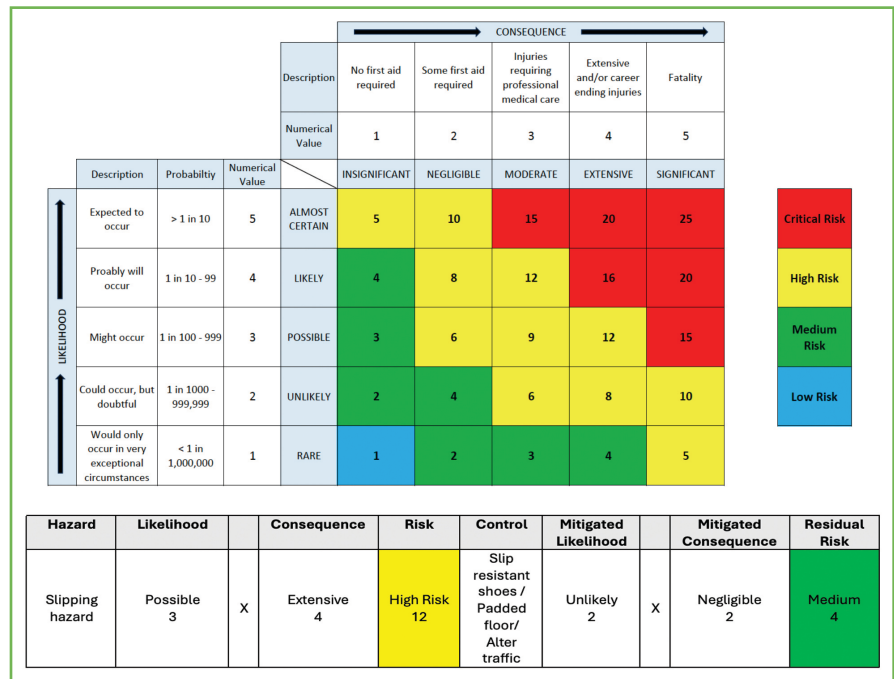
Cognitive biases, misunderstanding and misinterpreting information, the illusion of control, and our general lack of an intuitive understanding of probabilities—among other factors—often lead us to conclusions that aren't supported by fact and reason. Many of us feel safer driving than flying, even though an American is over 100,000 times more likely to die driving a mile than flying a mile. Many of us are deathly afraid of snakes, even though bites from snakes account for an average of less than five deaths in the US per year. Yet, we don't think twice about driving ten miles per hour over the posted speed limit and thereby doubling our risk of dying in a crash.

Technicians, project managers, administrators, and designers in the arts and entertainment often need to make judgment calls based on their perception of a particular risk. Although we can rely on our

training, experience, commitment to safety, and the authority of various standards, our perceptions and biases still have a great influence on our determinations. Based on my experience, I'd guess the most common cognitive bias that influences these decisions is the status quo bias. "But that's the way we've always done it" is a common point of resistance when discussing risk management concerns.

Having more formal tools for risk assessments—and even for the informal risk assessments that we undertake while standing on a stage or arena floor—helps to mitigate the influences of our very human biases. It gives us a framework to work within that relies on rational analysis, rather than on instinctive response.

To engage with formal risk assessment tools, we first need to understand what risk means in this context. Risk management



A more complex 5x5 matrix and example of risk analysis.

professionals understand risk as a multiplicative relationship between probability and severity. That is, risk is the likelihood of a negative outcome times the consequence of that negative outcome. This negative outcome is associated with a hazard, a technical term in risk management meaning a possible source of harm.

Although there will always be a qualitative element to risk assessments, a semi-quantitative model is very useful for identifying where the risk lies with an associated hazard. Possibly the most common tool for modeling and assessing risk is the risk matrix. These can be very simple 2x2 matrices with four possible risk outcomes or they can be significantly more complex tables with extensive information. Pictured are both a simple, 2x2 matrix and a more complex, 5x5 matrix. The 5x5 matrix was developed for a client in the entertainment industry.

The 5x5 matrix is a semi-quantitative model. It includes numerical values, descriptive terms, narrative descriptions, and, in the case of the likelihood (probability) axis, probability expressed as ratios. This gives the risk assessment team a more precise tool to determine the risk level of a hazard and the effectiveness of mitigation strategies.

The next step in a risk assessment process is identifying hazards. It is important to undertake this step with a team, even in an informal risk assessment. Brainstorming sessions are often an effective method of identifying hazards, and the more diverse the perspectives at the table, the more hazards get flagged. No matter our level of experience or expertise, none of us can identify all possible hazards alone.

Once the hazards are identified, they are assigned a place on both axes of the matrix. For example, we might identify a wet stage after a rain effect as a hazard. If we assign this hazard an “extensive” consequence due to the possibility of a career-ending back injury from a slip, and a “possible” likelihood because of the amount of foot traffic on that part of the stage after the rain effect, then we are facing a high-risk hazard requiring mitigation.

To mitigate the risk, we need to either lessen the consequence of the hazard, decrease its likelihood of happening, or both. In our rain effect example, we might pad the stage floor, change traffic patterns, and make sure everyone on stage is wearing slip resistant footwear, reducing both the consequence and likelihood of a slip. These mitigation measures are called controls.

To communicate this risk assessment and mitigation, we might use a table like the one pictured, along with more descriptive text. Thinking of risk in this manner and using tools like a risk matrix can help entertainment and performing arts professionals make better decisions about safety. For example, it’s often the case that a risk matrix can help us determine that multiple controls are required to reach an acceptable level of risk. Having a set of tools to assess and communicate risk is a significant asset in safety critical aspects of the arts and entertainment.

Risk management in safety is a field of study with a range of educational opportunities, including doctoral and PhD programs. This introduction to risk assessments just scratches the surface of the information and tools available to those concerned about

risk management. For those interested in expanding their knowledge on the subject, there are several organizations that have courses. One of the oldest and largest organizations offering this type of training is the American Society of Safety Professionals, which offers a risk management certificate program.

Even the most basic understanding of risk management adds to our ability to identify, assess, and mitigate risk in our workplaces. This not only can make our stages, studios, and arenas less risky, but it gives us tools to communicate why and how we’ve decreased that risk. ■

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