COSMOS
Navigate the Compliance Universe

CEP Magazine - January 2022
Applying actionable data from concept to reality: Part 1

By Joe Perez, ThD

Dr. Joe Perez (jwperez@gmail.com) is a Senior Systems Analyst for the North Carolina Department of Health & Human Services and Chief Technology Officer for SolonTek Corporation in Raleigh, North Carolina, USA.

- linkedin.com/in/jwperez/


Joe Perez

Anyone can make a pretty bar graph, but can you make sound decisions based on your graphical reports? How do you turn a flashy concept into an actionable visualization? Can your ideas become reality?

American mathematician John Tukey once said, "The greatest value of a picture is when it forces us to notice what we never expected to see." What value do you see in your data, and what ideas do you have when you see it? Are you relying only on nice-looking graphics to accomplish this or on the raw scientific data behind those graphs? Or should it be done by some leveraged combination of the two?

In this three-part series, to both capitalize on that value and explore those ideas, we will cover the five "Stages of the Spectrum" for data storytelling in action. By balancing art and science, and combining form and function, the author's goal is that the reader will discover the difference between impact and influence, and how that plays into making data actionable.

Data in action

Early on a February morning in 1991, a massive ground assault by an American-led coalition began against Iraq in a military operation that has been heralded as one of the shortest and least costly of America's military victories. This monumental feat could not have been accomplished, however, without actionable data—more accurately, without the brilliant application of deceptive actionable data.

Iraq had attacked and invaded Kuwait several months earlier, placing American and other socioeconomic interests in jeopardy, not to mention those of the Kuwaitis themselves, thus requiring a response in kind. The enemy needed to be driven out and stability restored to the region. The original plan to do so called for a heavy frontal assault, but General Norman Schwarzkopf, commander of the multinational coalition, challenged the military strategists and others to come up with a more creative plan that would result in fewer casualties on all sides in a prolonged conflict. The resulting new plan involved deceiving the enemy into thinking the coalition would execute an amphibious attack from the east and south, leaving their west flank virtually undefended. Troops would then swoop in from the west, catch them off guard, and outflank them with what would later be called the Left Hook.

This strategy involved following what is known as Magruder's Principle, a military form of deception based on the idea that it is much easier to exploit your enemies' beliefs than to change them, thus reinforcing any preconceptions they might have. The Iraqis were already thinking the Americans would attack from the Persian Gulf, so why not make them plan for it? The enemy used the data they derived from the misinformation the

Americans fed them to drive their decisions and inform their strategy. Getting into the intricate details of this elaborate ruse is beyond the scope of this article, but essentially, it worked.

As a result, the data derived from the Iraqis' reactions gave coalition leadership the insight needed to answer the incessant questions and make those tough decisions. The data ultimately enabled the American-led forces to exceed the general's challenge: The ground offensive achieved all of its objectives in less than one hundred hours with fewer casualties than expected. This is a true testament to actionable data.

Techopedia defines actionable insight as "information that can be acted upon or information that gives enough insight into the future that the actions that should be taken become clear for decision makers."[1]

Stated in an alternate way, it can be defined as meaningful data that is useful for making a decision, answering a question, or solving a problem.

These are the three essential tenets or characteristics of actionable data that will surface multiple times in this series. It distinguishes data that can improve the overall situation from data that serves as nothing more than fancy window dressing or interesting trivia (i.e., totally useless data from a practical standpoint). When one considers the staggering amount of data that is created in a single day (more than 2.5 quintillion bytes worldwide according to a recent *Forbes* estimate),[2] it becomes even more astounding to know that perhaps less than one half of one percent of this data is actually analyzed and used.

So how do you turn your own actionable data into a reality? Create a *data storytelling journey*.

The Data Warehouse Institute defines data storytelling as "the practice of building a narrative around a set of data and its accompanying visualizations to help convey the meaning of that data in a powerful and compelling fashion."[3] And with every data visualization, there is always a starting point. The developer or designer typically commences with an idea or a concept that exists only in their mind. As the end goal, this person will typically envision a completed data visualization containing one or more graphs.

But to make your data a *reality*, view your data's story as an imaginary horizontal line (from left to right) that includes five Stages of the Spectrum (i.e., best practices) for getting from the idea/concept (on the left) to the completed visualization and direction (on the right) (Figure 1). Those five stages—Conception, Inception, Perception, Inspection, and Direction—comprise the subtopics that will be expounded upon throughout this series.

Figure 1: The five Stages of the Spectrum

The way Figure 1 depicts these stages might cause the reader to assume the author intends for them to occur sequentially. While that may be the tendency under normal circumstances, it is also possible for stages to share concurrency or even overlap to a certain extent. In any case, it is essential to approach them in the light of a holistic strategy and with a positive mindset so it is an enjoyable activity for the developers, data scientists, decision-makers, and other compliance professionals who share a passion for actionable data. In this process, the professional observer will likely come to this conclusion: Before a concept can become reality, it needs to be visualized, *and* it must stand up to scrutiny.