Security Design for the High End Medical Records Platform

In designing effective security the Information Management Officers must take a different view than typical security; as hackers, espionage agents and corporate information asset thieves work on the cutting edge of Information Technology.

The ideal concept Information Security is to model off of the Quantum Physics approach that states that the future is simply an expanding set of probabilities, actual timelines of possibility, that continually resolve into one reality as measurements and observations are finalized.

Futurists look through the Copenhagen Window to view branching probabilities and select the opportune or most probable solution at that given view through the window based on those given circumstances. Agents dealing in hacking methods and espionage seek to gather current data sets and model passwords and security probes based on the gathered knowledge. Illogical behavior thwarts the advanced Identity Thief or hacker.

Future Sense views possibilities and then selects the most opportune or probable selections.

One such odd feature is that, according to quantum physics, the act of observation changes the universe. An unobserved event, according to quantum lore, has neither happened nor not happened: it exists as a mathematical object called a wave function, which describes all possible versions of realities, and which only breaks down into one or other when we make an observation.
In passwords, we evolved from passwords of limited data sets to larger and more random sets. The randomness of the sets and the security requirement to continually change these random security codes then creates a future where the agents must find a methodology of remembering longer and longer and more complex security codes.

In Security design, the model follows the Schrodinger's Cat model. But instead of the cat being alive or dead, the password either exists or does not exist. The password is either simple or complex. Until the owner of the data makes these decisions, does the security even exist.

Once the decisions are made, the reality known as the "Copenhagen Interpretation" exists and the very act of making the security exist is the first step in the hacker beginning the process of analyzing the owner's possible set of choices based on data they can gather on this person. They will seek to learn family names, pet names, maiden names relevant dates as well as probe for character sets to develop the difficulty equation. The very act of selecting the password is the first step to the failure of the security protocol to fail.

And yet, in 1905, Einstein found that Planck's idea was needed to explain another puzzling behavior of light, called the photoelectric effect. These developments led Louis de Broglie to make an inspired guess: If waves (such as light) can act like particles, then perhaps particles (such as electrons) can act like waves. And, indeed, this proved to be the case. It took a generation of brilliant physicists (including Bohr, Heisenberg, Schrodinger, Born, Dirac,

and Pauli) to develop a mathematically consistent and coherent theory that described and made some sense out of wave-particle duality. Their quantum theory has been spectacularly successful. It has been applied to a vast range of phenomena, and hundreds of thousands of its predictions about all sorts of physical systems have been confirmed with astonishing accuracy.

The idea of fields goes back to Michael Faraday, who thought of magnetic and electrical forces as being caused by invisible "lines of force" stretching between objects. He envisioned space as being permeated by such force fields. In 1864, James Clerk Maxwell wrote down the complete set of equations that govern electromagnetic fields and showed that waves propagate in them, just as sound waves propagate in air.

Among the many beautiful things quantum theory has given us is a unification of particles and forces. Faraday saw that forces arise from fields, and Maxwell saw that fields give rise to waves. Thus, when quantum theory showed that waves are particles (and particles waves), a deep unity of nature came into view: The forces by which matter interacts and the particles of which it is composed are both manifestations of a single kind of thing-"quantum fields."

The puzzle of how the same thing can be both a wave and a particle remains, however. Feynman called it "the only real mystery" in science.

The Uncertainty Principle, the bedrock of quantum theory, implies that even if one had all the information there is to be had about a physical system, its future behavior cannot be predicted exactly, only probabilistically.

When Price Waterhouse Coopers (PWC) measured the mindset of CEO's on Information Security they found a very high level of confidence. Yet the rationale for this confidence is likely based on a false sense of security as they have no idea what hackers are capable of or what their own unique vulnerabilities might be? These same officers that permitted "Bring Your Own Devices" (Smartphones, iPads and tablets) in the workplace has now lost confidence on this based on information losses.) This loss of confidence in BYOD is due to the following trend. **"Current employees are the most likely candidates to perpetrate a security incident (31 %) followed by former employees (27%)."**

According to PWC: **"existing security technologies and policies are simply not keeping pace with fast-evolving threats."**