

Social Engineering: 10 Delivery Mechanisms

Social engineering is neither good nor bad and has served humanity quite well in a number of circumstances such as societal leaders and influencers instilling the belief that murder for particular reasons is wrong and enforcing that belief using fear and empathy. There have also been times when social engineering has been used for more insidious purposes such as convincing societies that war and murder are the spiritual hardships that they must pursue to gain the riches that await in the afterlife playing on greed, fear, and anger. Most social engineering that is related to cybersecurity is much more middle-of-the-road or tame. In the previous article six ways to manipulate people to socially engineer a desired result was detailed. This article will be detailing nostalgia as a technique as it was not covered in the previous article. The same definition for social engineering will be use and is "The use of thought or mood altering human borne stimuli to produce a desired outcome from a target human or group of humans. Simply put, social engineering is getting others to do stuff to get the results wanted." Once targets are selected and the technique has been chosen the delivery mechanism must be thoughtfully considered so as to produce the greatest likelihood of success. The ten delivery mechanisms being covered in this article are:

1. Olfactory
2. Music
3. Live Theater
4. Ads
5. In-Person
6. Episodic Programs
7. Email
8. Instant Messaging, SMS, and Text Messaging
9. Voice-Calls
10. Group

Have you ever been outside after a light rain on a warm summer day and experience the fragrant aromas that tickle the nose? What about the putrid smells of outhouses, dumpsters, or sewage that burn the nose and threaten to bring a tear to the eye? The sense of smell is a very powerful force that helps humans avoid illness and injury while promoting the desire of experiencing pleasures such as good food. Selling food is one of the simplest and primary social engineering goals of olfactory delivery. Two other goals are to leverage nostalgia to achieve a result and the use of scents for security and privacy reasons. When olfactory is the chosen delivery mechanism to leverage nostalgia the goal is often retail sales but could also include attempts to manipulate the target into performing other actions. For retail sales the idea is to create a scent that resonates with a wide audience of potential customers

that will cause the greatest number of humans to become nostalgic and long for a romanticized version of previous experiences. An example would be a toy store that uses the scent of pine and peppermint during winter to attempt to invigorate customers' nostalgia for previous Christmases to purchase more toys. When olfactory is used with nostalgia for non-retail purposes there is a broader range of potential desired outcomes with a far more narrow target audience. In this olfactory-nostalgia combination a great deal must be known about the target. This is due to the complexity of creating a sustained attack on the senses of the target to produce a desired action. One example of this type of attack is when a target has a connection with a specific geographic location but resides or works for an organization in another. The attacker may use scents that are native to that location to stimulate memories and thoughts, in a sustained manner, that force the target to regularly reflect upon and romanticize their relationship with the location associated with the aromas. Two potential goals of this attack could be to have the target relocate or to produce a type of reverence for the aroma-associated location that will assist in getting the target to provide information or access. The nose can be used to alienate humans and help increase security and privacy as well. In this scenario a location is usually decided to be of reasonably high value. The perimeter of the facility grounds are laced with aroma creating mechanisms usually artificial aromas created by mixing chemicals in a lab and not by having actual sewage or other unpleasant substance present. When people take in these scents they can have both a strong olfactory reaction and a physiological reaction (vomiting, eye-watering, diarrhea, etc.) that makes passing these olfactory boundaries very unpleasant. As a bonus, anyone whom does make it past these defenses will have a lingering olfactory signature that is sure to be obvious to personnel within the boundary line. Olfactory can be a sweet delivery mechanism but music can achieve sound results as well.

It may be possible to depress certain regions of the brain or thought capabilities using specific frequencies and sound patterns/profiles. Anyone that isn't thinking clearly is more likely to make decisions that are otherwise considered unreasonable. Likewise, sounds can be used to energize humans (just listen to "jock jams") and the actual lyrics in music can be used to enhance moods in a preselected direction because words matter. The most obvious two examples of music as a delivery mechanism for social engineering are national anthems and Christmas music in retail stores. There are lesser known examples as well that include using this deployment mechanism with nostalgia, anger, depression, and fear to name a few. Used with nostalgia this delivery mechanisms can have many of the same desired outcomes as an olfactory delivery mechanism such as retail spending and allegiance to a person or geographic location. When coupled with anger the goal is often destruction and this delivery mechanism is usually coupled with another delivery mechanism that promotes what the anger should be targeting. An example would be using music to produce anger while using new media to focus that anger on a specific political cause such as abortion clinics or a war-time enemy. The most abhorrent use of music for social engineering is to produce depression in the target. When depression is the chosen tactic the goal is almost exclusively the reduction of effectiveness of a target government or company and can result not only in the loss of employees but the suicide of the target. This is a highly focused tactic with a sustained campaign of attack that usually uses more than one delivery mechanism with highly effective and often tragic results. Sound or music delivered fear-based social engineering can be quite thrilling as experienced by humans that like horror movies, haunted houses and other scary situations. Fear can also be used to destroy relationships, both personal and

professional. If you like hearing about music as a delivery mechanism just keep reading and be thrilled to see how live theater is used.

The ballet is a magical experience where angels float on clouds while plays permit the immersion into a world that is far from that of the audience. Because ballets are meant to explicitly not use words the music delivery mechanism is described in the preceding section; however, ballets do still use visual manipulations. For instance, both plays and ballets can have back-ground cues that will resonate in the physique of the audience and may promote certain ideals. The actual movements and choreographic styles are also used to convey great meaning. Consider a ballet where the prima, whom represents peasantry, is shrunk on the stage under a menacing male that represents the establishment and which has symbolism and coloring in the background that is representative of a certain political group, government, or organization. One might internalize the idea the political group, government, or organization is quite abusive toward parts of society. Plays are a bit less nuanced and can actually demonstrate explicit ideals such as was the case in "A Doll's House" and "A Doll House", one of which had an altered ending due to government intervention to quiet the idea of feminism that was the original intent of the play. Plays and ballets can be considered ad campaigns for specific ideals when they have explicit undertones but the goal of the audience is almost always entertainment while the audience for actual ad campaigns are not as voluntarily participatory.

Ads are the bane of many viewers experience whom choose to use free streaming services as well as many viewers of paid services. Ads clearly only have one purpose, social engineering so great detail will not be used to describe the overt social engineering. This article will discuss the nuanced and unconscious social engineering that are ingrained in certain social engineering attacks against specific targets. Highly targeted social engineering campaigns can leverage ads to fully immerse a target in a campaign designed to produce desired outcomes. The best way to explain this it to provide an example. To continue the example from the olfactory section, the technique used could be nostalgia with the goal of getting the target to relocate or build a strong connection to a geographic-based organization or entity to reveal information or provide access. This campaign could look something similar to targeting someone from the mountains using pharmaceutical ads that are not particularly relevant to the target but which have background scenery that displays beautiful mountain views, rock climbing, snow sports, hiking, and other mountain related scenes. This can be coupled with ads for mountain alcohols and beers, advertisements for mountain related vacations such as vacations to Nepal, k2, Colorado, as well as ads that have music that mention mountains or mountain-related themes. This is a very simple example as attacks could be far more complex, extremely targeted, and quite sophisticated. Whereas Ads are at the mercy and proficiency of intricate intelligence gathering and sophistication the in-person delivery of social engineering tactics is far less complex and often requires little intelligence gathering in required to perform attacks.

In-person delivery of social engineering techniques can be used to promote a wide variety of simple or complex goals. The techniques used in conjunction with in-person attacks can include fear, greed,

empathy, lust, love, and anger to name a few. An overly simplified example of an in-person-fear based social engineering campaign would be a mugger telling a victim the victim will be shot if a wallet with money is not promptly produced. A less simplified example would be two "friends" discussing a topic with one friend explaining how dangerous it would be to personal finances, the economy, and global economic stability if an institutionalized policy of global minimum living standards and stability were provided to poverty stricken communities and persons. When used in conjunction with greed this social engineering tactic is most commonly used for access to information or locations. A common attack in this situation is bribery or "dropping" money in view of a security guard whom is likely to pick-up the funds. When the guard leaves his/her post to retrieve the "free" money an attacker can slip-by unnoticed. Empathy is a very common attack with this delivery mechanism that often manifests with an attacker that needs another person to open a door because the attacker's arms are full of packages, a child, or some other item(s) or where the attacker has "forgotten" their badge inside. Lust is quite effective with particular delivery and relies on the target being quite fond of the appearance of the attacker. In this scenario the attacker makes a request that is not appropriate and the target obliges. The request may be for access or information and may be used in conjunction with empathy or may be a request for a certain action such as plugging in a USB to review a presentation or to print a PDF. Love is a long-term social engineering technique when an attacker is not impersonating a loved one. In this scenario the attacker's requests can be far ranging and have been known to include murder, torture, access, information, espionage, and a host of other undesirable actions. Anger can be leveraged to incite violence. An example of using anger would be an attacker that enters a group of protesters with the goal of creating a focused anger that results in property destruction, looting, or acts of violence towards the community or law enforcement. In-person social engineering attacks do not require exceptional levels of sophistication to be highly successful and do not have the sustainable capabilities of episodic programs.

Episodic programs have been leveraged for decades to promote social and political agendas many of which are under the guise of news or entertainment programs. Using episodic delivery can be meshed with nearly any technique to include fear, greed, lust, empathy love, anger, and nostalgia. As humans yearn for consistency it is common for humans to repeatedly return to programs while they remain consistent even when those episodic programs are not something they would describe as beneficial or entertaining. It is common for modern "news" programs to promote social and political agendas to the public with the veil of educating society about current events. This tactic was established sometime prior to the industrial revolution but became a true force of social engineering during the industrial revolution when news publications were able to massively disseminate papers to huge audiences for the first time. The way in which this attack works is fairly simple. The organization that runs the news (sometime the government) decides what the agenda should be for the society and the news agency (or agencies when they are acting in concert) will find stories that promote that agenda. A recent example of this is when news organizations in the United States had the shared agenda of Coronavirus numbers, education, and response then seemingly overnight transitioned to political protests and civil unrest. (As a mid-article disclaimer and reminder, this article is not promoting or denouncing any political topics or agendas, it is only describing social engineering delivery mechanisms which are neither inherently good or bad.) This delivery mechanism can also be seen through history by the amount of international

news domestic news agencies have produced and disseminated through various historical periods. Entertainment based programs have long histories of promoting social agendas as well. This has been depicted by programs that were considered "provocative" for having a main character that was in foster care, gay, a single mother, a hero that was a racial minority, and so forth. While in recent history there have been less nuance to the promotion of social and political agendas in episodic entertainment, there still has been a significant amount of nuanced promotion. Episodic programs rarely have the intent of targeting one specific individual because of the resources required versus the benefit of such attacks. On the rare occasion where a specific individual is targeted that person usually has a great deal of power or influence such in the case of a regional or national political official or high level executives of multinational organizations. The goal of person-specific attacks that leverage episodic delivery systems is usually policy change. Executives and political leaders may find email social engineering attacks far more common with a recently proven track record of near guaranteed attack success.

Email delivered social engineering attacks have been highly publicized and have fancy names such as phishing, spear-phishing, and whaling. Email delivered social engineering attacks usually use a mixture of more than one technique and can range significantly in sophistication and success. There has been quite a bit of exposure to most of these types of attacks so they will only briefly be covered in this article. Phishing is when an attacker sends a large number of emails to a wide audience with the goal of gaining specific information which often leads to resource access. Phishing campaigns may be targeted and tailored to a certain group such as organizational employees, fans of a specific sports team, or consumers of a specific product such as that of a specific email provider or bank. Phishing always claims to be something it is not but can vary greatly in specificity but can allege to be from a Nigerian prince, the IRS or other government agency, a bank, an email provider, a store, or any organization, group, or association. Phishing commonly attempts to promote some type of urgency, fear, and/or greed. Spear-phishing is phishing with a targeted audience of one or a very narrow group such as the IT managers. It uses many of the same tactics as generic phishing but can be much more tailored to the target group. Whaling is phishing that is highly targeted at very influential or important members of organizations or association. Emails can take a bit of time to be opened and may be susceptible to email security devices which may be one reason some attackers prefer instant messaging.

Instant messaging, SMS, and text messaging permit near-real time communication where an attacker can maneuver and respond based on an active discussion. This permits an attacker to dialogue an attack instead of relying on email which is usually a one-message and done attack. In instant messaging attacks, the attacker can convey emotion, build rapport, and shift techniques to determine which is the most effective. The goal is commonly having the target perform some action such as granting access, providing information, or inadvertently installing malware. This attack is a very interactive attack that can require a fair bit of intelligence to assist with more complex goals while requiring very little intelligence for simple goals such as acquiring information or access the target would not consider sensitive. While instant messaging, SMS, and Text messaging permit near-real time communication, voice calls were designed for real time communication.

Voice calls are a magical tool when it comes to social engineering because they have the ability to convey emotion, nuance, and context all of which can be absent in emails and other non-verbal communication mechanisms. Voice calls have been known to use a wide variety of techniques to achieve the desired results and often have been known to change tactics or use dynamic tactics mid-call to achieve the results. One of the most well-known attacks that uses voice calls as a delivery mechanism is debt collection and contact trace organizations. Debt collectors and contact tracers are amazing social engineers that use a wide variety of techniques to achieve results. They include lying to medical and insurance providers to achieve empathy to gain access to information about the entity they are trying to track, blackmail with the threats of prison and law suits, harassment to produce anger, along with rejection and depression to produce a sense of inadequacy for being in a financially difficult situation. Attackers have also been known to use a variety of tactics to persuade targets out of money with a fraudulent claim the target's 'donation' will benefit a social or political cause such as a campaign fund or saving abused children or pets. Humans are inherently far more likely to build rapport and trust with an attacker when they can 'physically hear' the emotion and trustworthiness in the attacker's voice. While voice calls are becoming less common for portions of particular populations this attack is becoming increasingly more specialized much like group delivered social engineering.

Group delivered social engineering is more of a hybrid-delivery social engineering attack than a stand-alone delivery system because it is dependent on some of the previously mentioned delivery systems. Group delivered social engineering can be the result of target selected group membership or coerced group membership. In target selected group membership a target decides to enter a group after-which the target is indoctrinated with a belief system with the goal of altering the life and actions of the target. Classic examples of this type of social engineering delivery system include religious services and "small groups", cults, group therapy, the NRA, political affiliation, and hobbyist groups. In coerced group membership the government or dominant social influence usually coerces targets into a group setting to indoctrinate a life-style, political agenda, or social agenda. Modern examples of coerced group membership social engineering include "retraining camps" in China, court ordered group memberships in the United States such as Alcoholics Anonymous, driver's education, and anger management, and sexual education in elementary schools. Group delivered social engineering is designed to "reform" or "train" a society to act a certain way to conform to "socially acceptable" standards as defined by the dominant social influence or political party and has proven to be highly effective and may predate uniform.

As the promised delivery mechanisms have been discussed it is time to mention nostalgia as a social engineering technique. Nostalgia is a powerful influence that causes humans to reflect on personal and societal historical periods with a romanticism that undermines the reality of the period. Nostalgia, when properly applied, can cause humans to romanticize historical periods so greatly that humans start to actually believe those historical periods were superior in quality and enjoyment to the present circumstances which undermines the logic of any argument. When attackers use nostalgia as a

technique they only need some basic social and personal information about a target. For instance, if the target has married parents and celebrates Christmas an attacker (possibly a toy store) may emphasize the joy and happiness associated with Christmas by displaying smiling children opening gifts that were common when the parents were children, depicts scenes of children sledding on sleds that were common when the parents were younger, and families drinking hot chocolate while intentionally not including the expensive prices, the cramped stores, the mess to be cleaned up after gifts are unwrapped, the disinterest in the toys shortly after being received, and such unpleasantness. The intent of nostalgia is to emphasize and romanticize the "good" portions of a historical period while minimizing and reducing the "bad". Another example is a scene where kids are sitting in a dinner sharing a shake that cost a nickel in the 50's. Nostalgia is an extremely powerful tool primarily wielded by retailers but that has been used by many attackers in many situations with great success.

Social engineering is neither good nor bad and has served humanity quite well in a number of circumstances but there have also been times when social engineering has been used for more insidious purposes. Most social engineering that is related to cybersecurity is much more middle-of-the-road or tame. In a previous article six ways to manipulate people to socially engineer a desired result was detailed. This article discussed nostalgia as a technique as it was not covered in the previous article. The same definition for social engineering was used and is "The use of thought or mood altering human borne stimuli to produce a desired outcome from a target human or group of humans. Simply put, social engineering is getting others to do stuff to get the results wanted." Once targets are selected and the technique has been chosen the delivery mechanism must be thoughtfully considered so as to produce the greatest likelihood of success. The ten delivery mechanisms covered in this article were olfactory, music, live theater, ads, in-person, episodic programs, email, instant messaging, SMS, and text messaging, voice-calls, and wrapped-up with group delivery. Thank you for reading, please leave a comment with any questions, comments, or concerns.

Thank you for reading

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