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# **Janus Realized: The Use of Social Media as a Means of Transparency Nuclear Communication to the Public**

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## **Abstract**

The temple to the Roman god Janus, the guardian of the past and future, held its doors open in times of war and symbolically closed them at times of peace. Communication of nuclear information, like Janus, should remember the past, but looking for a fresh start in the future. Transparency of government information has been brought to the forefront of public discourse through firebrands such as Julian Assange and Edward Snowden, and has resulted in more proactive government policies for transparency. Pressure exists on the nuclear industry to become more transparent to the public information consumer, but the trouble is discovering the balance between disclosure of information that inculcates trust with the public information consumer without divulging State secrets becomes problematic. The nuclear industry has historically lacked of steady and trusted communication to the public. Poor public communication acts as a catalyst for the breeding of misinformation and disinformation within the public sphere and is. This misinformation and disinformation is oftentimes used as scare tactics in movie and television plots or, or used in politics to forward an agenda. The public's exposure to nuclear information is usually through disasters, scares, and Hollywood plots.

Nuclear security needs a favorable trust from the public to accomplish its job with alacrity. This work discusses the public facing aspect part of nuclear information communication to the public as an information consumer. It outlines the issues of nuclear information delivery to public and the merits of social media as a form of rapid communications, which inculcates public trust to the nuclear industry.

## **I. Introduction**

In 1934, a scientist named Dr. J. Dewey stood to address his colleagues at the annual science conference dinner. He emphatically stated that it was the 'supreme intellectual obligation' to share scientific discoveries with not only the August body in the room, but also with the public at large [1]. Dewey's assertion was tried in select areas of science, with relative success, until the advent of World War II, where scientific communities were plunged into nationalistic / allied secrecy. It was not until after the war that proponents of transparency, such as Robert Oppenheimer, advocated releasing the achievements of

the Manhattan project to the greater scientific community [2] The US government responded with ‘oath taking’ measures and a crackdown on document classification. Many scientists bitterly complained about the oaths, calling them ‘ridiculous waste of time’, and decried for the freedom to share information with colleagues [3]. The sharing of information translates not only from colleague to colleague, but also to the public information consumer. The public information consumer is the general public that is not a part of classified information, but has a desire to learn more about government and scientific declassified information.

Since its inception, the US government has struggled to discover the balance between transparency and secret keeping from the public information consumer. We live in an age of the Freedom of Information Act, Sunshine laws, and governmental transparency mandates from the White House. Historical issues of national distrust and general ignorance of the public to nuclear issues has created an atmosphere rife for the creation and dissemination of misinformation and disinformation, which further fuels the public perception of the ‘mysterious’ nature of nuclear information. The question arises: what are ways to create trusted avenues of nuclear communication disclosure to the public information consumer without causing harm to national security?

## II. Social Media: Catalyst for Change?

The US government is moving toward a more transparent, open, and easily accessed information base through social media. Agencies across the government are adopting types of social media communication. Whether a blog, twitter stream, or Facebook, the US government, to a greater or lesser degree, has embraced social media within its domain. The implementation of social media use in the government is agency/department dependent [4]. The Obama administration has embraced social media as an outlet of information. The administration’s memorandum *Guidance for Agency Use of Third-Party Websites and Applications* defines the purpose of the act to “to help Federal agencies to protect privacy, consistent with law, whenever they use web-based technologies to increase openness in government” [5]. Lathrop and Rumi stated, “Obama’s memo was a signal moment in the history of open government, issued by a president who gained office in part by opening his campaign to allow his supporters to shape its message, actions, and strategy using online tools” [6]. Government is now ‘open’, but how much of the information that is secret and needs to be declassified, but is not made public because of overzealous protocol? Afar and Naseer [7] build upon this argument with the addition that, although social media is a cost effective form of communication, it gives the feeling of ersatz and is not ‘real’ participation in government [8]. They argue the concept of the phantom public is within this type of participation and it gives the perception of participation and aids in the ‘good feeling’ for government. Viet and Huntgeburth studied public participation in the government in Germany and concluded that Zavattaro and Sementelli are not entirely correct. In Viet and Huntgeburth’s study, the German people who participated gave information to the government though social media-for instance reporting water or road issues-felt a greater connection to the government [9]. This type of social media is deemed a boon for the government, because they do not have to hire so many people monitor public works.

Bureaus that primarily focus on security and safeguarding secrets struggle with how much to share and which platforms of social media are the ‘best’ for their message. A recent Working Group on Public Communication of Nuclear Regulatory Organisations (WGPC) report discovered that nuclear organizations were aware of social media, but had little idea of how to integrate the technology into the working communication strategy for public outreach [10].

The Committee on Nuclear Regulatory Activities (CNRA), promotes, “transparency of nuclear safety work and open public communication” [10]. The relatively recent disaster at Fukushima displayed the true extent of public ignorance on nuclear matters. To be fair, the nuclear industry tries to combat general ignorance of the public regarding nuclear information. However, the public information consumer, in

general, lacks any a real understanding of international nuclear policy, safeguards, and/or a basic knowledge of nuclear science. Therefore, the introduction (or reintroduction, depending on the case) to anything nuclear usually occurs in cases of nuclear disasters, nuclear weapons, and / or hazardous waste scares. The nuclear industry has long suffered from misconceptions grown from fear in the verdant public imagination. These concerns built from pulp fiction ‘facts’ has stymied the growth of the industry, which has the potential of being beneficial to nations in need of abundant clean energy, especially in the developing world.

Lauvergeon argues “objecting to nuclear energy in the developing world on nonproliferation grounds is politically, legally, and ethically unacceptable” [11]. She values the charter of the energy company AREVA as a succinct and generally affable way to engage the nuclear nations into clean energy [11]. She views the nuclear industry as at the verge of a Renaissance to place the image of nuclear energy above the toxic image of nuclear weapons. Transparency of the nuclear club’s program places weaker nations at greater ease, because of the knowledge of the strength of protection from the stronger nuclear nations. However, these situations are politically charged and often rife for the propagation of misinformation and disinformation.

The internet, albeit an excellent resource for seeking and disseminating of information, oftentimes is a breeding ground for ‘crackpot’ scientific theories and incorrect scientific information passed as accurate [12]. In this way, poor communication mystifies the work accomplished within the nuclear community by alienating the field from public understanding. Communication that is public facing from the nuclear industry is oftentimes written in a manner that is incomprehensible to the average American. The lack of ‘plain speak’ within nuclear communication alienates those who, arguably have the greatest need of reliable information concerning nuclear issues.

Moreover, the distancing of nuclear information from public comprehension creates a kind of fear and anxiety for the information consumer. This is expressed in popular culture through ‘mad scientists’ and villains who threaten the world with nuclear devices in Hollywood movie plots and comic book tales. This type of atmosphere of distrust and confusion breeds a ‘them vs. us’ mentality, and those in the nuclear industry are hard pressed to combat entrenched distrust in the public opinion. To address this issue, it is wise to examine the behaviors of the public information consumer.

### **III. Transparency vs. Security**

Communication and information theory combine for the better understanding of information consumption and message framing to users. Jürgen Habermas’ theories of communicative action and life world explain some of the social actions of information seeking behavior. Martin Heidegger’s theory of Aletheia explains an aspect of the transition of secret scientific information to transparent. Transparency is the intentional access and allowance for interpretation of information, so as to make informed decisions [13–15]. Transparency allows for the public to have a chance to shame and ridicule the government [16] and gives way to the possibility of feelings of distrust due to the exposure of the embarrassing parts of government that are arguably better left hidden [17]. However, transparency can also allow for public information consumer participation and the feeling of being ‘a part of’ the governmental process that leads to notions feelings of good will to the government [6]. Transparency is a two- edged sword; one side cuts in favor of the ‘secret holding agency’ in that the disclosure of information draws the public closer to the agency with trust; however, the reverse is also a reality. This was observable with the public fallout over the National Security Agency Snowden leaks. Heidegger describes this phenomenon in the theory of Aletheia. Confession and revelation of once concealed information has long been conceived as a cathartic act [18]. The ancient Greeks often used the concept as the plot of drama and as an important communicative social value. The action still holds weight in the modern world. The cathartic act from the revealer’s standpoint could be described as Aletheia. Aletheia describes the manner of un-concealment as

a revelation of the entirety of the picture of information [19]. It shows, to borrow from Habermas, the life world of information, and fundamentally changes the relationship with the information generator, the information, and the previously uniformed audience [20]. In this manner, un-concealment has the potential to inform the public and combat the ignorance that comes with exposure, and has the potential to destroy the 'them vs. us' mentality. It also has the potential in the case of premature exposure (such as Snowden's revelations) to create distrust. This falls under unplanned Aletheia and it threatens security.

Security is the intentional action of keeping an asset safe [21]; whereas, secrets are intentional concealment of information from one entity to another [19]. The world was turned on its head by the advent of WikiLeaks, which created a frenzy of security reassessment measures. Julian Assange believes that governments around the world are keeping secrets from the public, and the public has the right to know [22]. Like-minded individuals steal from the government and he/she gives the information to Assange's organization. Assange sells the information to newspapers and uses the profits to continue funding WikiLeaks and for his own salary. Assange makes a profit off the information and is touted by some as a modern day Robin Hood. Praise has been given to WikiLeaks because it 'levels the playing field' between the government and the people [23] and gives a greater check on democracy [24]. However, these authors fail to describe the issues of compromised intelligence. WikiLeaks has its own set of copycat actors such as Bradley (Chelsea) Manning and Edward Snowden. The members of the press were divisive on the coverage of both actors going to the point of comparing Manning's trial to a crucible [25] and demanding a swift execution for Snowden [26].

The active insider is one of the most difficult of adversaries to secrecy, because they have access to sensitive material and are not under the scrutiny as the regular person outside of the security system [21]. Both Manning and Snowden were insiders who knew the system and used technology such as burnable CDs and thumb drives to pass on classified information.

These cases illuminated the issues with modern technology as a detrimental device for keeping secrecy and security. Social media is a wild beast that rides on the wave of current popularity. The platforms of communication rise and fall in favor, but one thing remains the same; the mode of instant communication to a network of individuals through online and mobile devices [27] is a valid form of communication with foreseeable longevity. Social media was instrumental in disseminating information quickly for WikiLeaks and other mentioned cases. It was also a critical form for organizing protests for the Occupy movements [28] and the Arab Spring uprisings.

However, it is also critical for government communication, such as the twitter feed for the Center for Disease Control for disseminating information about the Ebola scare in the US. Social media is still its infancy (but growing at an accelerating rate) and scholarship varies widely on its impact and use. Most of the government and social media studies focus on the mundane forms of information usage. Wigand argues that open communications between the government and public by means of social media is an effective form of communication and societal participation [29]. In this respect, the government is opening a dialogue with the public using the information [30]. Hale views 'true transparency' as not a public relations stunt, but as a systematic divulging of information from an institution to the public [31]. Likewise, Florini asserts that transparency leads to international peace and legitimate and effective governance [31].

She argues that transparency decreases the need for security between nations, which frees capital for other economic endeavors [32]. Lee and Park argue that social media is spreading quickly and that the nature of the government and public through social media is an important aspect of social discourse [32].

## IV. Information Seeking Behavior

Information and communication scholarship informs our thinking of the tensions of transparency, secrecy, privacy, and security through the methods of information seeking behavior. People seek information on their own volition, for self-edification, or for other reasons, outside the confines of formative school education. The genesis of information-seeking behavior begins with the concept of people having an innate desire for information [33]. Benoit describes how that people will seek out the information they need [34, 35]. Dervin took the concepts to the next level by arguing that information is like an object that people find and use [36]. This concept was criticized because the information seemed in the method to describe the behavior of seeking information. In her groundbreaking work, Dervin looks from the perspective of the consumer of information and describes the process of sense making [37]. Sense-making is taking into account the aspect of the consumer (memories, personal experience, etc.) into the information being sought and received. Tidline argues that Dervin creates more of a metatheory version and by doing so misses the individual perspective [37]. Kuhlthau expands upon this notion by arguing from a phenomenological approach with an uncertainty angle [38]. Her concepts form into a six-stage model of how individuals seek and process information using Habermas' theory of communicative action [39]. Although Kuhlthau gives a more nuanced approach, the fault of any phenomenological perspective is that it cannot provide a wide understanding of groups of information seekers. Wilson's model focuses on the 'why' and 'how' people seek information [40]. He studies the reasoning and process of information seeking arguing that people bring all of the aspects outlined in previous types of research modeling, but the end goal is important to the full understanding of the information seeking behavior. Heidegger's theory of *Altheia* explores the concept of un-concealment and fits well into information seeking behavior by the opening of avenues of information.

These methods of information-seeking behavior directly correspond with the issues of transparency, secrecy, privacy, and security. The issues dwell within a mixture of Dervin's concepts of the information gap and the bridge, Wilson's concept of the end goal and Habermas' theory of communicative action. Secrecy, privacy, and security exists in the gap area, unknown, and as such shrouded in uncertainty. Transparency is the bridge to the information gap. The end goal is the reasoning for seeking the information (to inform, to expose, to educate others, etc.). The information consumer possesses these traits prior to searching. Habermas derives his theory from a mixture of Kant and Marx to attempt to describe aspects of life and social communication and behavior of humans [20]. He theorizes that people act within three aspects of social behavior: teleologically (deriving from linguistics), normatively (deriving from social values and customary norms), and dramaturgically (act in accordance with expected norms within the environmental context) [41]. *Teleos* is seeking information with the beginning and end in mind for the action. *Dramaturgy* is the social communicative result of the search, which after the action is completed it is reassessed and repeated.

These concepts fit within the model of information seeking behavior for it intersects the why (*teleos*) people seek information, the how (social norms that determine whom to ask or where to seek information), and the end user (how the information is used or passed on is determined by the dramaturgical context of the obtained information). In this interpretation of the theory the *teleos* and *dramaturgy* make a closed loop of continual information seeking, and information acts as a way of defining 'self' and place within the person's social community. The reassessment comes in the form of the use of the information socially; meaning, did the specific use of the information gain the attention, notoriety, etc. that the person intended. In this manner, the theory lends greatly to Goffman and the concept of people performing on stages with different 'masks' we wear to match the environment [41]. These types of meaning are implicit within the theory and are useful for understanding how and why people seek out scientific information. Communicative action is the use of information through linguistics that results in a community being formed / informed and resulting in an action (physical, verbal, or symbolic) [42]. Communicative action pairs well with social media due to the nature of the communication platform.

For instance, a person sees an article online from a news outlet regarding nuclear material storage in national facilities as being hazardous to the public. The person uses his or /her previous knowledge of science information and experiences with searching the Internet for trusted sources to begin a query on the veracity of the article's claims. The end goal of fact checking and education is important as the person attempts to bridge the gap of knowledge for understanding. The goal is to foster a relationship with the information consumer so that they will seek information on a legitimate government or nuclear industry website first as an outlet of information.

Social media is rather pliable to the different stages of methods of communication. Information in this aspect of theory is the instigator of action. It can be the rallying point for a social issue and as a forum of public and semi public opinion, and it has the potential power to physically bring people together for a common action. Good examples are the occupy movements, Arab Springs, Flash mobs, 'bat kid', the shootings in Ferguson, MO, natural disaster situations, etc. These are rather large examples of calls to action, for the medium also has the power to mobilize only those within a social network for even the minutest of task. Ultimately, the point is that social media is pervasive and persuasive within information seeking behavior and can be employed at any stage. Social media can hit the teleos stage by either information the social media network of the information- seeking task or by stating the intent and asking for opinion or advice. The normative phase is utilizing the social media network to help in the avenues of searching. Social media can be used in the dramaturgical phase as social capital for the knowledge gained by either demonstrating the knowledge, offering the knowledge pathways for self- edification, or through stating a biased opinion without truly referencing the knowledge although sought and read (hubris). Social media fits within any part of the information- seeking process it can exist to query a network of friends or colleagues for outlets of information, or could be to educate and inform the same (or different-depending on social media usage) network with the findings of the search.

## **V. Nuclear Communication- A Plea for Change**

The nuclear industry, like its scientific brethren, it suffers from a reinforced sounding loop of scientist, officials, and governments that communicate in carefully crafted diplomatic messages that oftentimes leaves the information consumer confused. This type of confusion results in means the information consumer being is more likely to seek out a source of information, which is written or explained in a manner they understand. Oftentimes, these sources are not correct. Thus the elevation of misinformation and disinformation sources as being 'truthful' by the information consumer. The disaster at Fukushima displayed the true extent of public ignorance on nuclear matters. To be fair, the nuclear industry does not have many effective efforts to reach out and educate the public information consumers in a manner that is digestible, so the introduction (or reintroduction, depending on the case) to any aspect of the nuclear industry usually occurs in cases of disasters, weapons, and hazardous waste. Uses of nuclear innovation in medicine have been almost successfully divorced from its nuclear origins from public opinion. Medical procedures, which are better known from their acronyms than the materials used are deemed as safe by medical professionals and in turn been adopted by the information consumer. The successful messages are the negative ones covering disaster and the horrors of radiation, and the negative chatter drowns the positive aspects of the nuclear industry. It does not help that such reports are laden with complicated jargon that does not appeal to mass consumption.

Social media represents a growing part of public information consumers' communication with private and public organizations. A part of the draw to the communication platform is that it is a cheap and easy form of mass communication [28]. Communication over social media is mobile and instantaneous, which makes it ideal for rapid communications to the public information consumer. Twitter is a popular platform used by the US government. Social media is a growing form of communication, but, like a great deal of communication platforms, it does not represent all of the public information consumers. Importance of social media communication ties, currency and 'catching the attention' of the audience. Agencies that

have done a good job of capturing the attention of the public are the ones with the greatest] number of followers. The information must be presented in a manner that captures the attention of the audience, and performs the task intended (to inform, educate, entertain, etc). The tweets must be maintained on a regular basis and kept relevant to retain the audience. Once the audience is maintained, when a crisis occurs, the message from the government is more likely to be received and received favorably.

For instance, the CIA's twitter feed dynamically presents information dealing with current events, declassified gear, missions, and / or operatives, and humor. Moreover, the FBI uses twitter to educate about historical events / people / crime fighting techniques, etc., but it also uses the platform to spread information the word on current cases, which are aided through public participation. In contrast, the twitter accounts with poor followings, retweets, and comments focus on technical language and dull manners of presenting information. Defense best offense- inculcate pathways of searching that lead information consumer to truthful information.

## VI. Conclusion

The information consumer has an innate desire to seek information. It is the obligation of the government to supply information to the citizen of their country. The US government on behalf of the American people mandates transparency, but in order to ensure the safety of its citizens, communications must be cultivated and maintained. If a relationship of an agency with the public is established, then security breaches of information are harder to shake the original opinion of the agency; however, for those teetering in sentiment it is often enough to push opinion against the agency. The goal is to discover the balance between offering enough information to inculcate trust between the public and with the nuclear community without divulging State secrets. If presented correctly, social media is a viable manner is to communicate with the public that inculcates trust of the information consumer to the nuclear industry.

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