Prospectus

User Experience Design to Synchronize Government Acquisition Strategy and Schedule
(Technical Topic)

Get People Outside or Protect the Wilderness: The Impact of Social Media on Public Lands
(STS Topic)

By

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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Introduction

Current technology is slowing down the government contract acquisition process, and its users are learning the art of the deal at a much slower rate than they should. Government contract acquisition consists of the writing and development of a request for proposal (RFP) that outlines the nature of work needed by the government. This RFP then initiates a bidding process where contractors vie for the project. It's an extremely laborious tasks with multiple players and no set way of scheduling what needs to be accomplished. Because contracting encompasses a variety of needs from missile design to artificial intelligence security, it requires skilled personnel to handle the acquisition process.

Our technical project entails harnessing automation and intuitive design to help acquisition personnel succeed. The ACQ-SYNC app will be a decision-support application that employs graphical user interfaces to help acquisition personnel in creating a plan, managing the plan, and dealing with setbacks. ACQ-SYNC will accelerate decision-making by presenting options in an intuitive way and will redefine the acquisition experience by breaking the linear process of traditional scheduling and illuminating the connections between activities and people. Overall, ACQ-SYNC will help jumpstart the acquisition process, build confidence, and provide shared knowledge for the acquisition team. ACQ-SYNC will bring a modern look to contracting tools and incorporate a novel approach to gamification that offers an engaging user interface for acquisition personnel. Our goal is to develop multiple wireframes that outline and portray the necessary features listed by MITRE.

In addition to the development of the ACQ-SYNC wireframes, I am also diving into the world of social media applications by assessing their impact on government owned lands. Since their inception, social media applications have been an outlet for expression and exploration. It allows users to access the world through what is often an edited photograph. In my research, I will be exploring the implications of viewing our public lands and the users of them in this distorted view. The goal is to discern just how distorted this view has become. More specifically, I will be addressing how this manipulation of reality has led to not only a number of issues within the domain of public lands, but also how it has created useful data and encouraged more people to become interested in the environment and the conservation of it.

By wireframing the ACQ-SYNC app and addressing the implications on public lands as a result of social media I will be answering two questions. Firstly, how can mobile applications contribute to productivity and accountability, and secondly, how does social media impact public lands.

Technical Topic

Government contracting moves $500 billion dollars a year, but much of the enabling technology that facilitates those contracts was implemented in the 1980s. Acquisition personnel make deals to find the right contractor to fit the mission need, whether they are buying an information technology system that tracks terrorists or an artificial intelligence application that detects early signs of cancer. The deals are

complex, technical, and there is pressure to spend the allocated funds before Congress takes it away. Acquisition personnel need to push information about project needs to industry and they need to pull information from industry to ensure they select the right solution. There are myriad strategies that acquisition personnel can exploit to plan the deal. Each deal is different and requires a unique approach and strategy.

Obsolete technological systems are slowing down the acquisition process, adding stress to an already complicated process. Acquisition is an art, requiring highly specialized skills that take time to develop. New hires in government acquisition departments often have formal education, but lack hands-on experience. New personnel, therefore, require technology that can train and guide them through the development of a unique acquisition strategy. No current tools deliver such support. The ACQ-SYNC app is envisioned as a decision-support tool to address this gap. It will employ graphical user interfaces and artificial intelligence. It seeks to help acquisition personnel in creating a plan, managing the plan, and dealing with setbacks. ACQ-SYNC will accelerate decision-making by presenting options in an intuitive way. It will redefine the acquisition experience by breaking the linear process of traditional scheduling and illuminating the connections between activities and people. Overall, ACQ-SYNC will help jumpstart the acquisition process, build confidence, and provide shared knowledge for the acquisition team. ACQ-SYNC needs to be intuitive, joyful, engaging, and fun! In order to accomplish that, it needs to be easy to use, yet bring a modern look to contracting tools and incorporate a novel approach to gamification. So

far, MITRE has defined the users, the necessary features, and has outlined the solution of decision support and human-machine teaming. Our goal is to develop creative approaches for deepening the level of user engagement and generating immersive visualizations beyond the typical calendar or schedule.

The high-level technical approach is to help acquisition personnel populate an acquisition schedule, beginning with initial planning and ending with 'the Deal.' The key members of acquisition teams are Contracting Officers (aka acquisition personnel), the Contracting Officer's Representatives (COR) who have the technical expertise, and the Program Managers. As many Contracting Officers, Program Managers, and CORs do not know all of what is available for consideration as part of the acquisition strategy and the general impact to the schedule, a starter menu of activities and brief descriptions of techniques will be provided (e.g., Industry Day, Industry Roundtable, demonstration). Critical paths/points/dependencies will be identified. General timelines (including ranges) of what to expect will be provided. Additionally, ACQ-SYNC will track occurrence of mandatory/prescribed events and track estimated execution time and elapsed execution time. Expectation management will be supported by allowing the team to visualize and track their assigned efforts and activities.

By the end of the capstone project, we will have multiple wireframe designs that have been evaluated by various users. These wireframe concepts, designed for a mobile application, will depict how users view and interact with the schedule. They will incorporate creative visualizations and aspects of gamification to engage and delight its

users. User testing will be conducted to evaluate the usability of prototyped user interfaces and how well each version supports human-machine teaming principles. The evaluation should help MITRE determine which features or visualizations are most impactful to eventual users. The ultimate goal is to create an experience so that every acquisition personnel wants this app on their phone, and its users can breathe a sigh of relief from current technology and obstacles.

Social Media's Influence on Public Lands

Although my technical topic covers contract acquisition and user experience design, I will be focusing on social media applications and the impact they have on government owned lands, or public lands. What if I told you that you could make $100,000 by posting a picture of yourself on a mountain top in brand name clothing? Most people would jump at the opportunity, and the allure of becoming an influencer leads people to do just that.

To understand the impact of social media on public lands, one must first understand the various social media platforms. This research will mostly be covering Instagram and Flickr, but will also touch upon various others. Social media comes with a wide range of functionality and capability but at the core of most platforms is the ability to post pictures and geotag the exact location the picture was taken. This becomes of importance in regards to public lands when the geotagged location is either used as a specific destination for others to venture towards, or used as a piece of data

that enables conservation research. The variability in outcome is the reason why it's important to address.

With no necessary knowledge of the environment or sense of direction to get there, social media and geotagging have enabled people from all over the world to explore public lands in an unprecedented manner. These influencers, people with as little as 1,000 followers, have stormed national parks and other public lands in search of the perfect photo opportunity. Their posts quickly lead other adventurous social media users to follow in their "phootsteps", as I like to call them. With approximately 3.48 billion active social media users (Newberry, 2019) online today, this quickly creates a snowball effect where relatively unknown landmarks quickly become tourist traps that are overcrowded and in need of serious infrastructure for the well being of the environment and the safety of the ignorant tourists. With issues ranging from clogged toilets to starving wildlife, the technical and social dimensions have dismantled the ability of public lands services to keep up with these problems.

A prime example of how this combination has impacted public land can be seen at Horseshoe Bend in Page, Arizona. This remote location prior to 2010 had a few thousand visitors annually, but within the year that Instagram launched, the visitation grew to over 100,000 and has since continued to grow at an alarming rate. For a town of 7,000 people, the lack of infrastructure in place was clear as trash piled up and traffic became congested. The sad reality of the situation is that social media has created the demand to achieve the perfect online presence, and all too often that means putting

people, animals, and environments at risk. “People don’t come here for solitude. They are looking for the iconic photo.” (Zia, 2018, p1). Tourists who come simply to post a picture with a motivational quote about conservation rarely understand that their actions often do more harm than good. While many people would agree that getting more individuals outside is a great thing, the fact that their actions have such a negative impact on the landscape would leave one to believe that this doesn’t remedy the problem at hand. More people getting outside in hopes of becoming an influencer is the exact opposite of what conservation-minded individuals would like to promote. Luckily, social media’s manipulation of reality isn’t all bad. These incredible photos can alternatively offer a variety of benefits to public lands that range from motivation for outdoor recreation to “big data” for conservation research. In the realm of outdoor recreation, it’s led to a number of a new participants in a multitude of activities. This participation is crucial for funding conservation efforts.

On the other hand, we have big data driving conservation efforts. Big data is considered the enormous amount of information sourced, in this case, through social media. By cross-examining big data such as the geotagging of specific locations on social media to other sources of data such as surveys and interviews, researches are able to produce findings that can lead to important conservation efforts. The scientific implications of social media’s “big data” include the ability to better understand species’ distributions, resulting biodiversity, erosion, pollution, recreational usage, and public opinion. A great example of this can be seen in Figure 1 where we see the

geotagged locations on flickr from 2005-2012. By enabling researches to access location data from geotagged pictures on social media platforms like this, they are enabled to carry out research on a whole new scale. With this development of technology comes new ways to uncover important data pertaining to public lands and the usage of them. By better understanding how we interact with the environment, we are able to better understand the necessary measures needed to keep it around for generations to come.

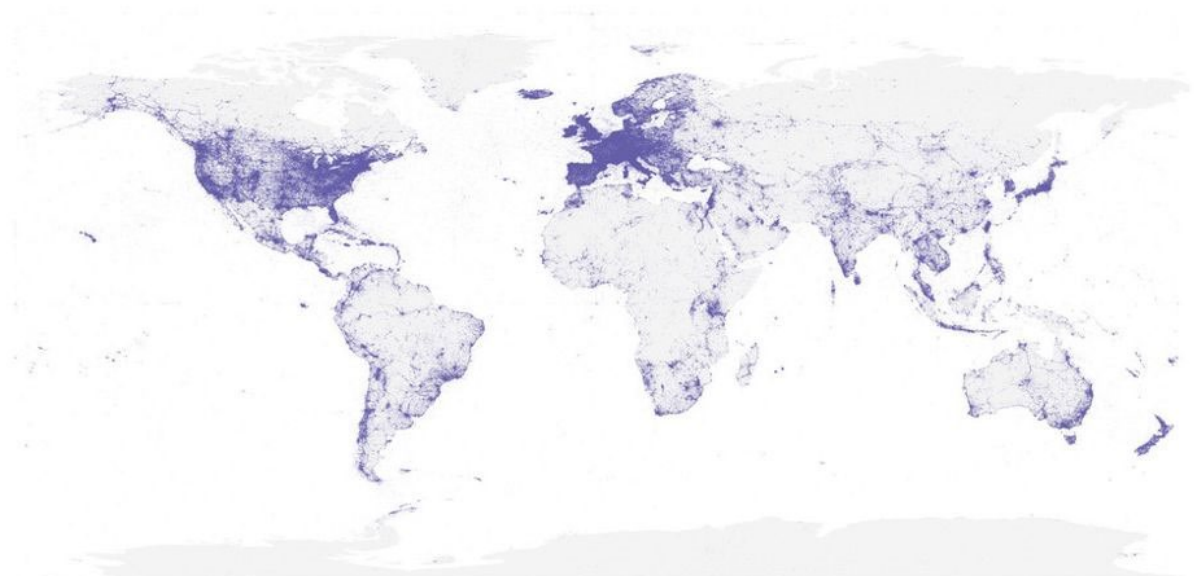

Figure 1. Locations of the 197 million geotags on flickr (2005-2012) (Wood, Guerry, Silver, Lacayo 2013).

On the other hand, the intrinsic motivation to protect the environment is a dormant monster waiting to be awoken in most of us. Will Primos said it best, "You teach someone to love something, they will want to protect it". The passion for the environment that is instilled in a person by showing them the natural world and teaching them to appreciate it goes beyond greed or fame. It's what drives conservation around the world. Ecologists like Aldo Leopold have a deep understanding of what it

means to be a part of something bigger than yourself, and it's these ethics that can be sparked from a simple photograph that lead me to believe that this alone is the most important contribution social media can give to public lands. This is where I plan to do most of my research. By framing the problem using technological citizenship (Andrews, 2006), I will uncover the ways in which social media has led people to become emblazoned with the call to action for conservation.

Research question and methods

The main research question I will be asking is: What sort of influence does social media have in regards to public lands conservation? Specifically, I will be asking what people think of their rights of access to knowledge, participation in public decisions, informed consent, and reasonable levels of risk exposure." (Andrews, 2006) Additionally, I will be trying to answer whether or not they feel they are fulfilling their duties in regards to public land use that "include achieving technological literacy, engaging with the problems of the day, and protecting the civic good." (ibid) These are pertinent to my overarching question because they specifically address the ways in which social media has positively impacted public lands by its ability to influence people and their conservation efforts by question how they feel responsible for it.

I will be utilizing case studies, interviews, and surveys to gather evidence and address this question. The interviews and surveys will be conducted on public lands and via social media to accurately address the populations of interest. This evidence

will contribute evidence about the psychological effect that social media has had on the users' opinion of conservation. Further, I will be able to discern whether or not the technology will ultimately impact public lands for better or for worse. "To those devoid of imagination, a blank place on the map is a useless waste; to others, the most valuable part." (Leopold) The words of the godfather of ecological conservation hold true to this day. It's this same idea that enables social media to become a force for good or bad on public lands and is why I am intent on answering the question.

Conclusion

The government contract acquisition is a laborious process and it takes highly skilled professionals to tackle the issues, and the work is tedious. By developing an application that harnesses gamification and artificial intelligence, we aim to speed up the process and coach new professionals along the way.

On the other hand, with more people spending time on their phones and using software applications, there can be positive and negative consequences. Land conservation is in dire need of new advocates, and I will address whether or not social media positively influences the opinions of its users with respect to conservation of public lands.

January 2020 – Conduct interviews

February 2020 – Assess and analyze responses, follow up if necessary

March 2020 – begin piecing together findings and write thesis

April 2020 – finish editing thesis and turn in final draft

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