Crowd Source Social Reporter (CSSR)
Requirements Document

Table of Contents

Purpose 1
Initial Questions 1
System Development Overview 3
Development Stages 3
Beta Demonstrator 3
Follow-on Versions 4
Baseline Public System 4
Comprehensive Public System 5
System Requirements 7
References 8

Document Revision History		
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1.0	12/7/2022	Initial, Strawman Version

Purpose

This document gives a brief introduction to why the Crowd Source Social Reporter system (CSSR – Working name) is being undertaken, and maps out the its development path with MoSCoW prioritized requirements.[1]

This is a working document and it is assumed that it will be reformatted to conform to chosen development methodology.

Initial Questions

1. **What is the reason for the project? What problem(s) will it attempt to address/solve?**

   Due to over 50 years of underspending on the country's hard & soft infrastructure, the nation has close to a $10 trillion deficit that is not tracked on any ledger or account (Ex: U.S. Chart of Accounts kept by the Treasury).[2] This deficit will adversely affect the nation's ability to compete, remain safe, provide jobs and address climate change. If the U.S. was run like a corporation, it would have a Capital Asset Management Plan that would detail the condition of its plants and equipment, and the current and future capital needs to keep it in good repair. Because this does not exist, Congress is only spending about $1/10^{th}$ to $1/20^{th}$ per year of what's needed to fix what's broken. In other words, the

U.S. should be spending upwards of $2 trillion or more per year in "new money",[3] rather than the current $200 million per year.

The CSSR address this by enabling citizens using smartphones to post pictures and video to the web (crowd souring) of the over 1,000 daily major failing infrastructure where it can then be commented on and shown by news organizations. This will in turn create a public support and pressure elected leaders to address the problems, some of which are listed below (Table 1).

2. What is the goal of this project?

- Generate public support to force Congress to fix the country's major hard and soft infrastructure problems (Table 1 - partial list).
- Create an initial version of the Server/App Crowd Source Social Reporter system (CSSR) to generate interest and get additional support to grow the system.
- Design the CSSR so that it can evolve into a customizable platform (plugins, interfaces, etc.) that can be used to support many different social causes that use crowd-sourced information.

Table 1. Selected hard and soft infrastructure problems.

1. Failing water and sewage treatment plants	9. Abandoned factories (42,400 offshored 2001-08)
2. Millions of potholes in roads	10. No rural or inner-city broadband
3. Crumbling roads & bridged	11. No defensible cybersecurity perimeter (IOT, etc.)
4. Decrepit K-12 public schools	12. Climate Change & decarbonizing U.S. economy
5. No healthcare clinics for low-income individuals	13. Inadequate flood control for climate change
6. Vulnerable offshored supply chains	14. No high-speed rail or freight
7. 50% of U.S. food grown in drought regions.	15. 80% of microchips made in Taiwan (China threat)
8. Urban traffic moves slower than 1900 horses	16. Unaffordable housing (~ 7 million units needed).

3. What is the scope of this project?

The scope of the project is to create a Server/Smart-phone App system that will:

- Enable the public upload geo-located pictures and video of failing infrastructure using a smart phone App with comments and/or audio file.
- The server will have a web interface that allows for to search for uploads using combined geographic & keyword searches.
- Users can comment on uploads and reference them with links from social media (URL command line interface to access individual posts.)
- Users, social media and news organizations can download the images, video and audio to show the decrepit state of U.S. hard and soft[4] infrastructure.

4. What data do we need to include/collect?

Data to collect includes: User name, Date, Lat/Lon of phone, infrastructure type (hard & soft), failure type from drop-down lists, images, audio & video files, and comments. See Table xxx below for a MosCow list.

5. Who is the target user? Who is the target audience?

The Target User is anyone with a smartphone.

The Target audience is

a. People who have not used the App, but could be induced to do so.
b. Influencers and the social media hierarchy to discuss and support its use.
c. Media outlets, both traditional (CNN, Fox, NBC, CBS, etc.) and web-based.
d. Academics who would use data from the website to discuss infrastructure and social/societal issues.
e. Politicians who need to be pressured to support solving the country's infrastructure issues.

6. **What do we wish to achieve?**

- Generate enough public support to force Congress to address the country's infrastructure and climate change problems.
- Create a Crowd-Source Social Reporter application that is publicly supported and will evolve into a generic platform (plugins, etc.) that can be customized and reused to help address future social issues.

7. **What do you wish the end product will look like?**

The initial version, designed to generate support for continued improvement, would have easy to use and navigate user interfaces for both the website and the App. It would have a sign-up for user verification (Echo Email back), and rudimentary search by infrastructure type, region, and key words. It would also enable the user to link to existing content (URL interface for commands).

8. **Can the MoSCoW method be used for this project?**

Yes.

System Development Overview

The approach will be to develop the system in stages, with the end goal of developing a platform that has a full set of tools to manage an active and engaged user community securely. XXX stages of development and their goals are outlined below, with each building on the prior stage. The requirements are detailed in the System Requirements section.

Development Stages

Beta Demonstrator

Create both the server and App that **Must** work on both iPhones and Androids smartphones. The goal is to demonstrate basic functionality and generate additional support for the project.

Follow-on Versions

While the functionality of succeeding version **Must** be determined by available resources and the development path, it is helpful to establish the functionality for two additional systems:

- **Baseline Public:** The minimum functionality needed to make the system public, and
- **Comprehensive:** A fully developed system that includes may of the advanced features found in information management and social media platforms.

Baseline Public System

The following is an initial list of functions that the CSSR system **Must** have to manage its content and users.

Terminology

- **Post:** The act of adding content to the server as either a collection of photos, audio and video files
- **Comment:** Making comments on existing posts.
- **Flag:** An indicator that can be set to posts and comments should be reviewed because some portion is incorrect or inappropriate.

1. **Smartphone App-Server architecture:** The system **Must** have both a smartphone App and a website server.
2. **Smartphone App:** The App **Must** facilitate uploading of pictures, audio and video files by providing a simple interface that that can be rapidly accessed, versus using a browser to open the server homepage. The Appl **Must** enable users to make rapid posts because a lengthy procedure **Must** reduce participation.
3. **Server with homepage:** The server **Must** have a homepage that offers the same functionality as the App or better.
4. **User management:** CSSR **Must** enable users to create accounts with a chosen ID, Email and other information (TBD). There **Must** also be several levels of users, verified, unverified and content referees (See below). The system **Must** also be able to detect and block malicious users. An issue to be debated is whether unverified users can make posts (comments, new infrastructure posts, etc.). The system Could also enable users to form groups with specific areas of focus. Users **Must** be able to do the following:
    a. Create a user account
    b. Login to and manage their account.
    c. View and edit their own posts.
    d. Become Validators, who are cleared to review and fix or block content.
    e. Create and manage special interest groups with.
5. **Content Management:** The sever **Must** provide tools to manage posts (user content). An issue to be debated is whether the system **Must** allow verified posts. The tools Will, including the following capabilities:

a. **Content Filter:** The system **Must** have filters that detect inappropriate language and notify the user their post or comment needs to be corrected.

b. **Content Flag:** Validated users **Must** be able to flag content for review or immediate removal in the case of inappropriate posts or comments. The mechanisms and methods to accomplish this is to be determined by the developers.

c. **Content Validation:** The system **Must** have a mechanism that enables Referees to review and validate content that may be new flagged by users due to errors or inappropriate material (text, images, etc.) In the case of errors, the error might be fixed by the Referee or referred back to the user for correction. In the case of inappropriate posts/comments, the content **Must** be blocked and the user may be temporarily or permanently banned (by whom?). To Be Determined: whether users can make posts and comments without first being reviewed.

d. **Content Copywrite:** The system **Must** use approaches used by systems such as YouTube, Wikipedia and others with regard to ensuring content is free from existing copywrites and that posted content becomes publicly available to anyone accessing the website or using the App.

e. **Post Linking and Splitting:** The system **Should** have the ability to link multiple entries to a single event, or split a post into two or more separate posts. This would be done by Referees.

6. **Content Access:** The system **Must** have a URL interface where individual or group posts can be accessed using a URL with the appropriate parameters. An issue associated with this is balancing public access with server demand, especially large, multi-attribute queries that could require significant computational power.
7. **Content Download:** The system **Could** enable users to download content for use.
8. **Content Search Tools:** The server **Must** provide both text and map-based views of content that be used either alone or in combination. Search query parameters **Should** be savable to ease repeat requests. The system **Could** also provide tabular and graphical statistical summaries, based on user queries. To Be Determined: Can users store images or PDFs of searches in their accounts?
9. **Post Contests:** The system **Could** provide the means to manage contests. For example, the system administrators could run a contest to vote for the Failure of the Day, Week, Month and Year for individual types and for the entire site.
10. **Email Alerts:** Users **Could** be able to set alerts to notify them if posts are made that fit a specific geographical and text attribute query.

Comprehensive Public System

The following is an initial description of a fully developed CSSR system.

1. **Pugin Interface:** The server **Could** have the ability to install "plug-ins" to give it additional functionality, similar to statistical packages for Excel or Filters for Adobe's Photoshop.

2. **System Connectors:** The sever **Could** have an API that allows programmers to create connectors between it and other systems.
3. **Audio to Text:** The system **Could** have the ability to transcribe voice to text, so users don't have to type in comments on their phone.

System Requirements

The items below are a first cut, at defining the systems requirements and may be changed by the system developers as they see fit and gain experience with the system's development and use.

Table 2. Data Requirements

No	System	Level	Name	Description	MoSCoW
1.	App	S	Post Data	Basic data that is included with any upload User ID, Time, Date, Geographical Location (Lat/Lon), Type/Subject from drop-down lists, keywords, and a text description.	M
2.	App	S	Post Files	Attached photos, audio and video files.	M
3.	App	S	Photo Direction	The compass direction the camera is pointing when photos or video are taken are uploaded.	S
4.	App	S	Infrastructure Classification (Primary & Secondary)	The App **Must** have at least two levels of drop-down lists to classify the type of item being uploaded, with the second determined by the 1st list. For example, a pothole could be classified as Road, Pothole, an abandoned factory would be Factory, Closed/Abandoned.	M
5.	App	S	Post Action	This identifies what the upload is about: Failure, Fix, Update. Failure - Indicates something is damaged, broken, closed, etc. Fix - Indicates something is being fixed, repaired, improved, etc. Update – Indicates this is an update on to a previous post with no change in status	M
6.	App	S	Post Type	The type of post: New – The item is not tied to a previous post. Update – The post is tied to a previously uploaded item, which may be the users, or by a different person.	M

Level: Indicates whether the requirement is High Level (H), such as the Server **Must** have a web interface for users, or Specific (S), such as an entry **Must** have a User ID and a date.
MosCoW: M - *Must have*, S - *Should have*, C - *Could have*, W - *Won't have*

References

[1] See https://en.wikipedia.org/wiki/MoSCoW_method.

[2] See https://en.wikipedia.org/wiki/National_accounts, https://www.bea.gov/data/economic-accounts/national and https://fred.stlouisfed.org/categories/32992

[3] New Money is the term used by Congress and politicians to indicate money that has not already been planed for and budgeted with the source of the funds identified. The $1.2 trillion-dollar IIJA bill passed by the Biden Administration actually only contains $550 in new funds spread over 5 years, so it sounded good, but in reality, is far too small to have any significant impact. See https://en.wikipedia.org/wiki/Infrastructure_Investment_and_Jobs_Act

[4] Hard infrastructure refers to physical assets such as roads, bridges, rail roads, water and sewer treatment plants, telecommunications, electric grid, flood control, airports, harbors, leaves, etc.. Soft infrastructure refers to schools, hospitals, community centers, parks, libraries, public transit, etc. See https://en.wikipedia.org/wiki/Hard_infrastructure and https://en.wikipedia.org/wiki/Soft_infrastructure.