**Web Civics**

# Human Centric AI: Social Web

A Firefox Browser Extension Project

## OVERVIEW

This is intended to provide a stop-gap measure for the creation of social semantic annotations to support 'knowledge cloud' functionality, to improve productivity.  The problem this is attempting to address, is that there's a lot of linked research that people are doing, but its not being presented as effectively as I would otherwise like to achieve.  This is reducing productivity, causing unnecessary confusion / limitations on 'situational awareness' and is an inefficient use of energy.  To address these issues, there's a lot to be done to do it better - but as an interim measure, the desire is to create a solution without great expense, that plugs into a browser as a browser extension. Given FireFox is already participating in the W3C Human Centric AI group, let's work on that as the primary target, whilst seeking to employ other W3C based specifications.

## GOALS

1. Solid Based: There's no other better alternative presently. Primary presentation via Brower Plugin.
2. Social:  There needs to be 'addressbook' & scheduling / calendar / time management related functionality for sharing content permissively, creating means to discuss, etc..
3. BookMarks & Feeds: There needs to be a way to share the content annotations relate to.
4. Annotations; the point of the app, should support links & info about media type (ie: weblink, PDF, media-file, text, images and tabulated data (ie: statistics with links, etc)).
5. Graphs: ideally there's a way to represent graphs of subject oriented links / annotations.
6. Export - Ideally, the app can grow to support import/export; into, print and/or HTML / Google Docs or related formats.
7. Categorisation: Two primary classes,,
    a. Text / General Media; including,
        i. Genre classifications / categorisation (ie: fiction, speculation, etc.)
        ii. Spatio-Temporal Informatics.
        iii. Agent Attributions
    b. Numbers (stats, metrics, maths, etc.).
8. Project / Time / Contribution Tracking
    a. Project Graphs

## SOCIAL GOALS

9. Decentralised: This is intended to support 'commons' based approaches. Commons is defined as something that may be between 2 or more natural persons.
10. Who Did What When: Track provenance.
11. By Agreement: Agreements need to be made between parties which may change, but whatever they are - they continue to apply for the period in which they're in-effect.
12. Track Time - people do work, it takes time, an effort calc would be helpful.
13. Entity Tracking & relations: Particularly the ability to permissively gain a better comprehension of organisations and people / organisations involved in different things.
14. The ability to use the project as a means to test various different ideas; associated with further development.

## Technical Methodology

The project should seek to work as an experimental solution for defining the interoperability requirements for Human Centric AI related requirements. The present view on how this may be achieved is by employing the solid based implementation related ecosystems. This does not reflect the future capabilities that are sought to be produced as a consequence of having in place interoperability standards and related solutions. This is not intended to be an exemplar of the end-goals, rather, an initial - quickly achievable - stepping stone, towards broader objective works; to function, as an aid for those works.

One of the key frustrations and/or problems is that people do not understand decentralised systems at all well; and there are few alternatives available. This is intended to act as a demonstration of how these things can be made, support illustrations of the problems related to these different types of ecosystems; support the use of these different ecosystems for the benefits, whilst offering a means to have something simple, that can in-turn be built upon and developed.

### PROBLEMS TO ADDRESS

The permissive commons strategies to ensure sharing of shared works with rules, is instrumental.

The 'values credentials' for managing how people engage in relationships / agreements with one-another is also considered to be essential. Some work may be personal & confidential, etc.

The use of RDF / Semantic Web is the way these ecosystems can be achieved, but there are deficits that will become the subject of further work to support improved multi-lingual and AI Functions. Authentication and use of 'out of band apps' will also be employed to make it work.

# NOTES RE: SPECIFICATIONS

The primary purpose of this project is for Human Centric AI work-related purposes.

The data-services are going to store and curate data using Semantic Web tooling, built around the use of RDF and the current Solid standards requirements, as a future backwards compatibility standardised target, as to support portability as a safety protocol requirement..

**Client Interface**

The initial target will be a Mozila browser extension on desktop Operating Systems (Linux, OSX, Windows 32/64).  As there are no fixed IPs, this will need to primarily use alternatives such as Web-Sockets, noting also that the authentication is not consistent with future objectives.

**Primary "app" interface**

The app should function in a manner that is similar to a password manager or similar; where,

- User needs to log into it and can assert permissions about whether it logs everything or if it is turned on only when 'clicked'; and,  What functions it is performing when active.
- It should support the following functions;
    - Social Functionality
        - Directory / Address Book Functionality
        - Temporal analysis / views / scheduling / etc.
        - Instant Chat Functionality
    - Personal and Permissive (Social) Knowledge Graph
        - Dictionaries, categories & classifications
        - Project Definitions: Contexts, purposes, collaborations, distinctions, roles.
        - Annotation Functionality

**Admin Interface**

The Admin interface should provide the ability for users to organise the informatics for the app, permissions, security / safety settings, etc.

**Back-end**

The back-end will work to function using solid based specifications; as to support the base-line requirements.  Additions may be provided to support currencies and permissive commons (decentralised storage of 'commons' artefacts, in a permissively governed manner.

It is hoped that the works can be employed to test accounting systems for future use with financial currency related economic systems that have the focus of supporting fair-work terms.

## Curation

The project will be curated as a Web Civics project. The licensing for this project will be permissive, and compatible with any obligations related to producing Proof of Concept and/or R&D related works with standards bodies / projects (ie: W3C CGs, etc.) and 'creative commons' related considerations, etc. However, the effort that goes into creating it, is sought to be tracked.

Contributors and Users should be entitled to support their own 'choice of law' (local jurisdictional support) via fabric based methods; that are knowingly experimentally part of the R&D purpose of this app.

The secondary purpose of this project is to provide some basic instrumentation that can be used to advance works with the Human Centric AI - internet governance related projects & related works. It is hoped that this app will improve support for cooperative works & collaboration, etc.

## KNOWLEDGE ECONOMICS

The experimental accounting systems seek to form an attribution graph of the effort that's gone into producing the useful derivatives and/or parts thereof.

### ADDRESSING "Digital Slavery"

Whilst some people, indeed most, are gainfully employed and the work may beneficially relate to the improvement of their circumstances as is related to their gainfully 'employed' roles with related organisations, institutions, etc... For others, this is not the case.

It is hoped that some funding for people whose work is not otherwise funded in a manner that preserves support for their basic cost of living needs, as to be above the poverty line contextually associated with their circumstances...

### Limitations

This is not intended to be a 'final' solution, nor something that is envisaged to have long-term support (although that may happen, who knows!!); there are going to be many limitations of this implementation. Overall, one of the primary goals should be to ensure long-term support for representation, portability (ie: future works are able to consume the content stored in these formats) and flexibility, whereby part of the purpose of these works is to establish a foundation that can be employed to produce solutions that are practically / pragmatically - better, overtime.

This project is not intended to be plugged into AI APIs, however features to make distinct AI contributions (as distinct to natural persons, in whatever capacity) is part of the R&D process.

## MILESTONES

I think the milestones are not necessarily temporally dependent upon one-another, but we'll see. NOTE: version IDs here are for illustrative purposes, but may relate to version v0.01, v0.02, etc.

### V1: Hello World

Mozilla Extension

The UX/UI for the app needs to be created. This can be created to be non-functional POC, ideally with consideration about the intended application approach

Solid based Back-end Fabric

The app framework needs to be stitched into the Solid based standards / APIs, etc.

Fix Bugs

There will be functional issues that need to be addressed to make it work.

### V2: Updates

I would like to create DID:GIT for GIT protocol (not specifically 'github', V1 should help do this work. Additionally, the use of Mark-down, Semantic Web and Web (ie: HTML5) tooling should be explored; alongside the development of various works in various inter-related fields of interest.

Through the use of it, we should collect an array of requirements / feature requests, etc.

These will be collected, ideally there will be more contributors and we'll figure out 'next steps'.

### Tech References

Solid

- https://www.w3.org/community/solid/
- https://solidproject.org/specification
- https://github.com/solid/solid-spec
- https://solidproject.org/TR/protocol

Mozilla

Anatomy of an extension:
https://developer.mozilla.org/en-US/docs/Mozilla/Add-ons/WebExtensions/Anatomy_of_a_WebExtension

## DEV NOTES

Strategic Objectives

Part of the "Human Centric AI" works seek to create a formal digital justice and 'social security' system, which includes support for 'digital prisons', where people who are alleged to have committed serious offences may be provided services whilst their circumstances are evaluated.

The most likely solution for these types of future functions, to support human rights, is solid.

These works need a lot of consideration; false claims and consequential harms targeting people, whose works are valued by others, simply seeking to benefit from those works - is a problem, as a subset of broader 'social attack vectors' and related wrong-doings, requirements for available lawful remedy, redress, and should it be deemed appropriate in a court of law - compensation and/or civil / criminal penalties, etc. So, this work should seek to keep in mind the need to ensure portability, as a means to support human rights / rule of law.

THe most likely solution is solid, noting the now expansive support capabilities the community is equipped to employ to seek to bring about - the best possible solutions, in a timely manner, etc.

The lead provider is presently Inrupt. Whilst interoperability is sought, the objective here is to use the existing tools on a best efforts basis, to see how it can be made to work - today.

Attempts should be made to either; seek to implement in a 'human centric (ai)' manner; or, make notes about areas where that is not practically able to be done easily & related assessments, etc.

React - it appears that the easiest method to implement is through the use of react components.

- https://github.com/WebExp0528/React-Extension-Boilerplate
- https://github.com/inrupt/solid-ui-react
- https://docs.inrupt.com/developer-tools/javascript/react-sdk/

## Collaborative coding

IDK. Maybe use Web Civics github repo atm - TBD.

## UI toolkit

TBD: Certainly useful; not sure which one yet, note licensing requirements considerations.

## Ontologies

Ontologies and ontology mapping / declared inferences; is a very significant consideration that is sought to be progressed either as an extension to this app; or as an integral part of it.

## Functional Description

This provides an objective outline - rather than necessarily what will be delivered for 'V 1' etc.

Login / Log-out - Authentication

Social

- Diary
    - Notifications
    - Chat
    - Updates
    - Bookmarks
    - Reminders
    - Tasks
    - Notes
    - History (timeline review)

- Directory
    - Entities
        - Websites
        - Entities
        - People
    - Concepts
        - Topics
        - Concepts
        - Agreements
- Social 'ontology'
    - Define Groups - Using Tags (ontological terms)
        - Use WikiData terms
        - Define Scope / Context
    - Add / remove members from groups
    - Rules
- Models:  Ontological models for different types of content (ontological structures)

Archive

- The ability to snapshot / archive the version of the page being referenced, and then support the ability to identify if there's been any changes to the content associated with references since the annotation about the specified content - was made.

## Work

The primary purpose of this application development process, is to enhance capacity, improve productivity when doing knowledge work - that involves either public URIs or permissively controlled URIs that can be shared between users of the browser plugin.

Whilst people are likely to be working on similar things for different purposes and sometimes also, mutually beneficial purposes and/or shared projects; the ontological structures relating to their works are individual and then semantically mapped via inferencing methodologies.  This is where improved functionality is expected to be developed overtime, alongside the modular structures of how it is achieved.  Nonetheless, the concept is to start simple with something that works, then grow it.

Core considerations are;

- Projects
- Components
- Communities
- Links & resources

Discussion:

The App should map conversations relating to the active URI of the browser, which in-turn creates an ID for a shared resource between participants, that can then be employed to map additional references and related links and contexts..

## Data Structures

As the 'app frameworks' are presently unclear, the data-structures for each component should be considered both in terms of current and future functionality for those data-structures, intended to be stored at this stage - on solid servers, employing whatever the specifications are for it now.

There may be work-arounds to support decentralised informatics - such as Web-Torrent or similar, to decentralised permissive distribution of RDF / UTF-8 encoded documents & Binaries.

EXCLUSIONS

I do not want to create an API to share the information between different apps before getting to a point where people control those APIs & End-Points.  This requires more work, that is out of scope for the purposes of this app, at present.  The app should be licensed in a manner that provides the capacity for it to be forked and developed in different ways by others should they want to; however, core development should promote the broader 'human centric ai' objectives.

## Profile

TBD.  Objective should be to illustrate areas of interest, activities within areas of interest and generally support knowledge dissemination in relation to a person's work related interests / life.

These works should be 'human centric' from the perspective of entity-relations, but presently not focused upon support for the needs of people's personal lives; as requires work, and a means to do that work without employing solutions that are different to the objective outcomes, to support selfhood / personhood / human centric AI, etc.

A possible way to achieve something, might be to select a specific HTML template (perhaps also provide the information about how to DIY) and enable the data-services required to host it on github or similar, noting the desire to not provide API interfaces to 3rd party apps / systems.

## Verifiable Claims, Payments & currencies.

There are various reasons to support verifiable claims, however the means to do so properly; is presently unclear. The primary issue may well be resolved via defining a fit-for-purpose protocol.

The app should however make use of 'human rights' based instruments to define terms between agents who have actively formed relationships (connections) with one-another; another is to create ontologies that define (the AI on) different sites, and there different characteristics...

It would also be good if there were functions to support the means for people to be compensated for works; but not 'unfairly' from the perspective of the creator or the provider / supporter.  This will also require ontological contexts associated with the governance of derivatives.  The objective here, is to address 'digital slavery' without supporting means for people to be paid more than fairly for work that has moral debts associated to it due to the works not being provided fair payment, should that be considered desirable by the AUTHOR (which may be different to the provider; noting additional challenges / opportunities / objectives).

Whilst these objectives are considered - hard - the initial stepping stone might be to create a means to do the accounting, without being able to support real-world payments at the early stages.  This accountability framework would in-turn be developed for future growth via works.

NOTE:  One of the critical Objectives is to ensure the systems do not end-up becoming globally centralised, this is a significant risk as soon as payments becomes part of the ecosystems; and, whilst the risks of global controls are of great concern, related issues do not necessary address 'fairness' which starts with acknowledgement - and related social factors, that need much more work.  As such, this 'app' should provide support as an experimental environment to seek to address these sorts of problems, expected to be progressed via app related experiments..

Confidentiality / Privacy & Wicked problems

When seeking to undertake works to address problems that relates to technology and ICT designs; but have the exhibited implications of disaffecting persons in ways that are very personal, private and disclosure gives rise to risks that may disaffect a persons human rights / dignity; means to process these sorts of problems, of which there are many, need to be figured out.  This will be one of the most significant purposeful use-cases that should inform designs.

These sorts of use-cases also have a variety of useful purposes for probity and (cyber) security related considerations, for various purposes, notwithstanding the present-day lack of support for ensuring remedy for false statements claims & actions that disaffect persons due to falsehoods.

Not everything needs to be known by everyone; and indeed, many of these 'social attack vectors' relate to agents who employ privileged knowledge on the basis that attacks, knowingly false, can be committed without any means to properly form appropriate lawful remedy in a timely manner.

These sorts of use-cases will in-turn feed into the 'digital justice system' R&D to define solutions.

## Human Centric AI foundations

In-order to develop 'human centric ai' systems, we need an environment that can be used to create the underlying patterns needed to power private and personal AI agents; and in-turn also, the ability to ensure that 'bad actors' can be exported from providers related solutions, without disproportionately disaffecting their human rights; including but not limited to, natural justice, etc..

This project should act to create a capability to support various works on the 'social factors' that should in-turn be produced as the compatibility layer and/or reference design, that can in-future support use-cases such as the 'digital prison systems', as are required to support probity / safety.

## Ontological Challenges

There are various ontological challenges, which this project should act to help clarify, support means to gain a common-sense about those issues and consequentially thereafter, respond to.

## Software Design

Modularity

Sidebar - should have the ability to pull-up a sidebar on the side of the browser.

Concept; the ability to browse notes, contacts, comments, etc. without changing tabs, etc.

Lightbox - should have the ability to identify specified links, and open them in a light-box overlaid on the original webpage contents.

Concept: the ability to review links associated with the browser plugin's capacity to identify elements that have attributed comments - that may relate to references from PDFs or other documents, that a user wants to review - without going to a different tab / website, etc.

## Support for pseudo-anonymity

- if an entity is subject to particular rules relating to protection from abuse, they remain in place irrespective of the pseudonym.

- pseudonyms may be dynamically presented to different users based upon relations (or lack thereof).

## Private DataStore

Primary storage needs to be on a solid pod with private permissions, locally cached.